REDUCING NEONATAL MORTALITY IN RURAL GHANA: UNDERSTANDING CURRENT NEWBORN CARE PRACTICES AND THEIR CULTURAL CONTEXT

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To my mother, my grandmother, my children, and the women of Kintampo District, Ghana, all of whom have inspired me.

Abstract

Dramatic improvements have been made in child survival over the last 30 years. However, despite the gains of the child survival revolution, neonatal mortality rates have stagnated as infant and child mortality has decreased. Every year 4 million newborns die before they reach 28 days of life. The Millennium Development Goals urge the reduction of under five mortality (from the 1990 level) by two thirds by the year 2015; this will not be achievable unless there is at least a halving in the number of neonatal deaths, which currently account for 36% of all childhood deaths.

Some promising interventions have recently been shown to improve newborn survival through home and community based care and there is considerable interest in whether these can be implemented on a wide scale. They are particularly needed where a large proportion of births take place at home and access to health services is suboptimal. Such interventions depend on understanding sociocultural factors that form the basis for newborn care practices. Research elucidating these factors has recently been identified as a priority in several peer reviewed publications and within the international health community.

Although the number of newborn deaths is highest in South Asia, the risk of newborn death is highest in Sub Saharan Africa, with West Africa having the highest rates. The present study critically examined the social, cultural, and behavioural factors that play a role in determining care practices during childbirth and the neonatal period in Kintampo District in rural Ghana. A qualitative, ethnographic, study design was used including participant observation, in-depth interviews, semi-structured interviews, expert interviews, narratives, and group discussions, with

grounded theory as the guiding theoretical paradigm. It was carried out in four sites: Kintampo town and three villages, Apesika, Jema, and Kawampe. The study benefited from the ongoing ObaapaVitA Vitamin A maternal mortality trial database. This allowed triangulation of the ethnographic findings through analysis of birth cohort data on all 2,878 singletons born alive to mothers in the trial in Kintampo District within the year July 2003 – June 2004. Available data included: location of birth, presence of an attendant, wrapping and drying after birth, substances applied to the umbilical cord, bathing and early infant feeding practices. Narrative interviews from verbal autopsies conducted through the ObaapaVitA trial were also used to capture information on actual newborn deaths.

The study findings are presented separately for the following three domains: Pregnancy and Preparation for Childbirth; Neonatal Care Practices; and Newborn Illness, Death and Care Seeking. These highlight several gaps in current practices where improvements might lead to reductions in neonatal mortality.

Lessons learned have also been drawn together, both from the perspective of implications for the design of interventions to reduce neonatal mortality and concerning methodological issues in conducting formative research on newborn care practices.

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Abbreviations

BAT	British American Tobacco
CS	Caesarean Section
CHW	Community Health Worker
GHS	Ghana Health Service
IMNCI	Integrated Management of Neonatal and Childhood Illnesses
KHRC	Kintampo Health Research Centre
LSHTM	London School of Hygiene and Tropical Medicine
MDG	Millennium Development Goal
MIRA	Mother and Infant Research Activities
NGO	Non-governmental organization
NPEU	National Perinatal Epidemiology Unit
PObs	Participant Observation
RAA	Rapid Anthropological Assessment
SCF	Save the Children Federation
SNL	Saving Newborn Lives
SEARCH	Society for Education, Action, and Research in Community Health
TBA	Traditional Birth Attendant
UNICEF	United Nations International Children's Emergency Fund
VA	Verbal Autopsy
VHW	Village Health Workers
WHO	World Health Organization

Chapter One: Introduction

1.1 Study Aim

To contribute to the development of intervention strategies to reduce neonatal mortality in areas where a large proportion of births take place at home.

1.2 Objectives

- To describe current home-based perinatal and neonatal care practices in Kintampo District, Ghana;

- To elucidate the complex sociocultural factors influencing these care practices;

- To assess these current practices against recommended early childcare practices in order to identify gaps that might adversely influence neonatal survival;

- To identify constraints and facilitating factors to take into account in potential intervention strategies to address those gaps.

1.3 Rationale

Newborn mortality is a huge problem in the developing world. The latest estimates from the World Health Organization put the figure at over 4 million neonatal deaths per year (WHO, 2006). Deaths during the neonatal period, the first 28 days of life, account for approximately 36% of all childhood deaths each year; the risk of death in the neonatal period in developing regions of the world is more than six times the risk in developed regions (WHO, 2006). The number four million equates roughly to the combined total of deaths from malaria and HIV in one year (Lawn et al., 2006).

The magnitude and public health relevance of neonatal mortality was highlighted by the Lancet Neonatal Survival Series, a series of papers published by the journal in 2005. The second paper extensively reviewed available interventions to reduce neonatal mortality with a focus on proven, cost-effective strategies (Darmstadt et al., 2005a). It estimated that up to 37% of newborn deaths could be prevented by expanding coverage of outreach (specifically antenatal care) and family and community care, with the majority of the reduction effect due to an increase in family and community care. Family and community care is defined as 'family-oriented and community-oriented services supporting self care, including the adoption of improved care practices and appropriate care seeking for illness'. Community mobilisation and the empowerment of individuals and communities to demand better services are seen as a key aspect of this care.

The authors also suggested that emphasizing antenatal and newborn care through these family and community-oriented approaches, especially by including strategies to improve 'domiciliary neonatal care practices' and care seeking, can bring early success in reduction of neonatal mortality in settings with weak health systems and elevated rates of newborn death (Darmstadt et al., 2005a).

The evidence on community based interventions that informed the Lancet paper was published in the journal Pediatrics (Bhutta et al., 2005). This review pointed to research gaps in newborn care practices which occur in the home and emphasized the need to understand and improve household and community practices and their determinants. It specifically noted, 'local formative research is needed to better understand local beliefs and practices and the reasons behind them so that effective

behaviour-change strategies can be developed and evaluated.' The review went on to state that this formative research should be followed by appropriate research to develop intervention strategies to improve care seeking behaviors.

In the Millennium Development Goals (MDGs) and during the UN General Assembly Special Session on Children, the international development community affirmed its commitment to improving the health of children and reducing neonatal mortality. The fourth MDG specifies the need to reduce the 1990 level of child mortality by two thirds by 2015. Such a goal will not be achievable unless there is at least a halving in the number of neonatal deaths (Lawn et al., 2006). Given the increasing recognition that neonatal mortality comprises a significant proportion of child mortality, the Millennium Project Task Force on Maternal and Child Health, an independent advisory body to the United Nations Secretary General charged with recommending strategies to achieve the MDGs, recommended that an indicator for the neonatal mortality rate be added as a fourth indicator to the Child Mortality MDG (Chowdhury and Rosenfield, 2004), alongside the under-five mortality rate, the infant mortality rate and the proportion of 1 year-old children immunized against measles.

The MDGs are concerned with indicators necessary for sustained socio-economic development, another reason for addressing the problem of neonatal mortality. The World Health Organization established the Commission on Macroeconomics and Health in order to review the role of health in development (Gelband et al., 2000). The reports generated by the Commission clearly state the need to address perinatal and neonatal health in order to foster sustained socio-economic development. The

future disabilities and ill health that result from neonatal morbidity contribute significantly to the need for action; a State of the World's Newborns report noted that for every newborn that dies of asphyxia, one of the most common causes of neonatal death, another suffers lifelong impairments such as epilepsy, cerebral palsy, or developmental delay (2001).

The economic costs of neonatal ill health are clearly detrimental to the development of countries. For example, according to a computer model developed by analysts at the Academy for Educational Development, it is projected that in Senegal, roughly 100,000 newborns will develop disabilities resulting from asphyxia and iodine deficiencies between 2001 and 2007. These disabilities would reduce the children's potential lifetime economic contributions by at least $121 million dollars, or $1,210 per newborn. Such a loss would have a significant impact on the country since the annual gross national income per capita is only around US$1,500 (Yinger and Ransom, 2003).

A rights-based approach to health also provides a clear rationale for investing in reducing newborn mortality. The United Nations Convention on the Rights of the Child states that health care is a basic human right, and that right must be met by specific attention to health problems encountered by this segment of the world's population (UNICEF). Furthermore, the rights based approach to health seeks to address gender-based discrimination, which may be argued to be a factor in maternal, and consequently, child morbidity and mortality.

The problem of newborn mortality is also, at its core, closely linked to inequalities between wealthier and poorer populations. Ninety-eight percent of all neonatal deaths take place in developing countries, the majority out of reach of skilled health care. Currently the neonatal mortality rate is five deaths per 1,000 live births in developed regions versus 33 per 1,000 in all developing regions, and 42 per 1,000 in Least Developed Countries (the 50 countries designated as the least developed in the world by the United Nations based on three criteria: low-income, human resource weakness, and economic vulnerability) (WHO, 2006).

According to the WHO estimates, the highest number of neonatal deaths occur in Asia, where the most children are born (WHO, 2006). However, the risk is highest in Sub Saharan Africa, and Western Africa has the highest rates of neonatal mortality in the African region, with a neonatal mortality rate of 49 deaths per 1,000 live births.

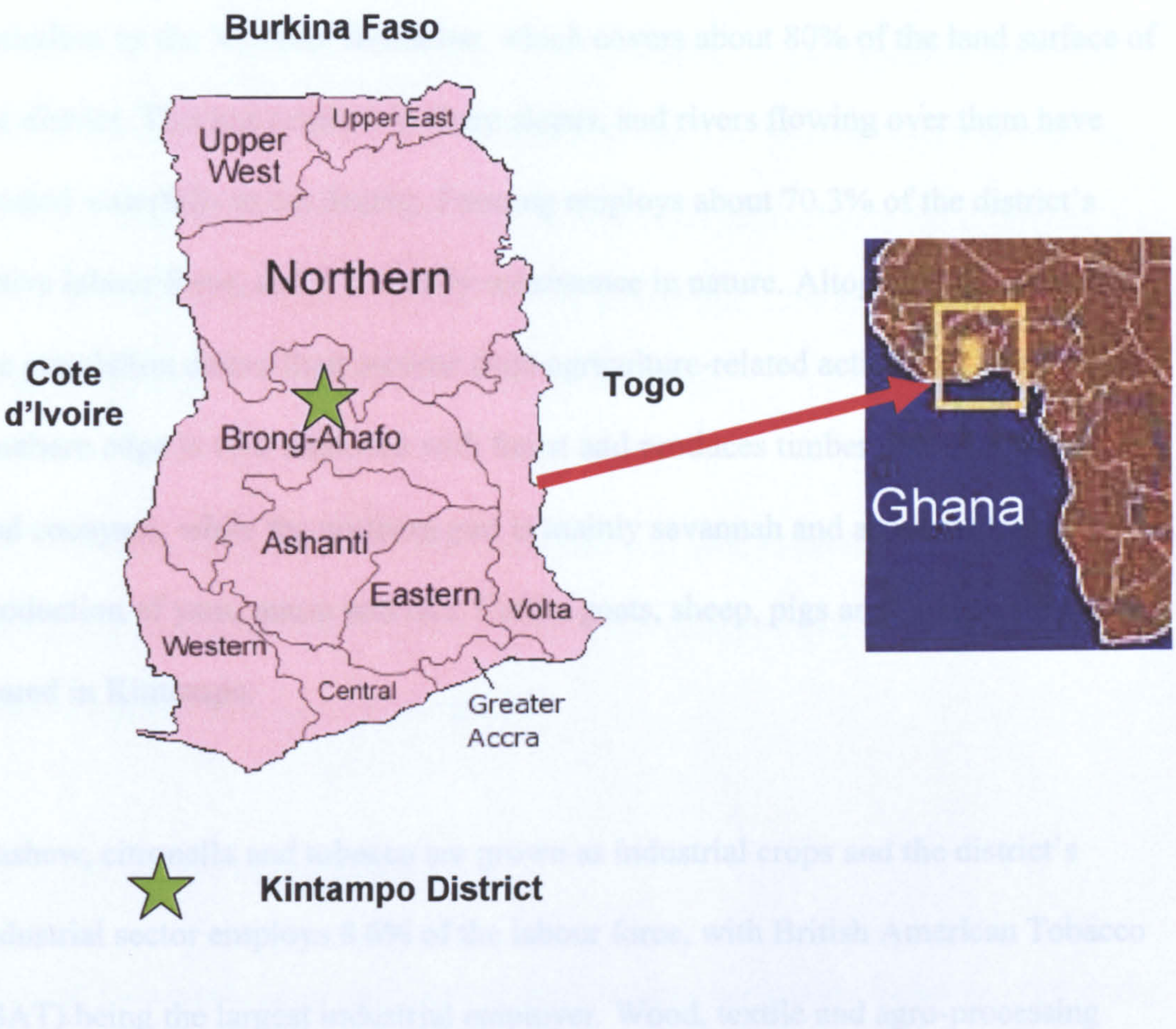
1.4 Study Setting

Given the high levels of neonatal mortality in Sub-Saharan and particularly Western Africa, along with the tendency for higher levels of mortality to occur in rural areas where most births take place at home, the country of Ghana was chosen as a research setting.

The study was based at Kintampo Health Research Centre (KHRC) and is part of the long term research collaboration on child health between KHRC and the London School of Hygiene and Tropical Medicine. The Centre is located in Kintampo, the district town of Kintampo North. Kintampo is situated in the forest–savannah transition zone within the Brong Ahafo administrative region of Ghana (see Figure

1.1) and covers an area of 7,662 square kilometres. Prior to 2003, Kintampo was classified as one single district and in this study it will be referred to as the combined district as the study took place in both Kintampo North and Kintampo South and most data pertains to this combined entity.

Figure 1.1 Map of administrative regions of Ghana and neighbouring countries, showing location of Kintampo District



The population of the Kintampo North and Kintampo South is estimated at 146,943 living in more than 150 villages with the densest population concentrated in the south along the main road. Neonatal mortality is a major problem. Out of 3,799 births that took place in the year from July 2003 to June 2004, 100 babies died in the first 28 days of life (213 died in the perinatal period), giving a neonatal mortality rate

of 27.4/1,000 live births and a stillbirth rate of 38.2/1,000 (ObaapaVitA trial data, see section 3.6 for more information).

About 70% of the population rely on hand-dug wells and streams for their water needs and there are 66 boreholes in the district. Only seven towns and villages have access to electricity.

According to Ghana district government information (GDS), 'The district is underlain by the Voltaian formation, which covers about 80% of the land surface of the district. This has resulted in sharp slopes, and rivers flowing over them have created waterfalls in the district. Farming employs about 70.3% of the district's active labour force, and it is mostly subsistence in nature. Altogether, about 90% of the population derive their income from agriculture-related activities'. The district's southern edge is well endowed with forest and produces timber, plantain, cassava and cocoyam, while the northern part is mainly savannah and accounts for the production of yam, maize and rice. Cattle, goats, sheep, pigs and poultry are also reared in Kintampo.

Cashew, citronella and tobacco are grown as industrial crops and the district's industrial sector employs 8.6% of the labour force, with British American Tobacco (BAT) being the largest industrial employer. Wood, textile and agro-processing industrial operations are also ongoing. The district also contains extensive clay deposits used mainly for brick and tile works. 16.1% of the labour force is employed in the service sector, including teachers, nurses, administrators, financial and non-financial institutions and other civil and public servants.

The combined district, and specifically Kintampo town, is home to a large number of different ethnic groups undoubtedly related to its origins as a stopover point between Kumasi, the capital of Ashanti, and Tamale, a northern centre for trade and commerce. The majority of the inhabitants in Kintampo district are ethno-linguistically Akan (Bono and Mo) people, but many northern ethno-linguistic groups, such as Gur (Dagomba) and Guan (Gonja), have moved to the area in recent years. Most villages in the district are multi-ethnic with either Bono or Mo majority populations. According to a 1999 study (Arthur et al., 1999), the district's ethnic composition is Akan 63% (21% Mo and 42% Bono), Gonja/Dagomba/Mamprusi 11%, Frafra/Kusai/Dagarti 8%, Konkomba/Basare 7%, Sissala/Wala 5%, with the other 7% made up by other ethnic groups. Religious affiliation in the combined Kintampo district is 50% Protestant, 17% Catholic and 15% Muslim, with traditional religion accounting for 4.5%, and no religion 13.2%.

The ethnic diversity and rich mix of religions and backgrounds made Kintampo an ideal study setting from which to investigate the complex socio-cultural factors influencing newborn care practices.

1.5 Structure of the thesis

Chapter Two contains an overview of the relevant background literature concerning recommended neonatal care (and supportive evidence for this), anthropological accounts of care practices during pregnancy and childbirth as well as early childcare, and ethnographies related to pregnancy, childbirth and the newborn period in Ghana.

Chapter Three provides details of the study design, including descriptions of the methods used, data collected, sample size and composition for each method, data procedures and ethical considerations.

There are then three chapters of results together with discussions of how these relate to other literature. Chapter Four covers findings related to pregnancy and preparation for childbirth, Chapter Five those relating to neonatal care practices, and Chapter Six those relating to newborn illness, death and care seeking.

Chapter Seven summarizes the lessons learned from conduct of the research, including methodological lessons as well as those pertaining to strategies for reducing newborn mortality. Finally a summary and conclusions are outlined in Chapter Eight.

Chapter Two: Literature Review

2.1 Scope of the review

This chapter covers the available literature regarding: 1) recent reviews on neonatal mortality in the developing world, 2) recommended care in the newborn period, 3) interventions implemented in the community setting with the aim of reducing neonatal mortality and 4) the anthropology of birth and early childcare, with a special emphasis on that conducted in Ghana, the study site.

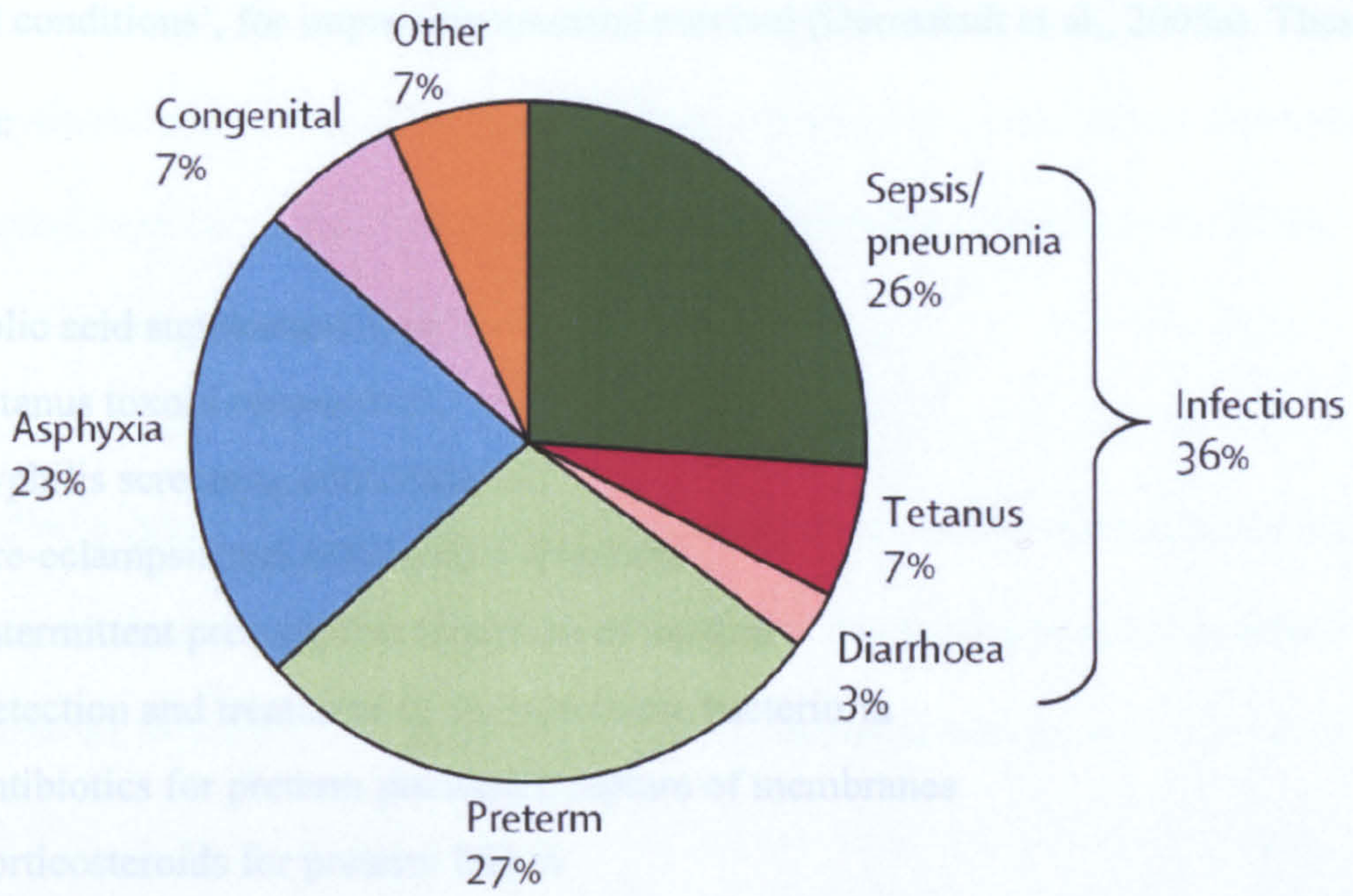
2.2 Recent reviews on neonatal mortality in the developing world

Neonatal survival has been receiving renewed attention in the last two years due to calls from both policy makers and researchers to address unacceptably high levels of mortality. Two major reviews on neonatal mortality have appeared in the last year. The first, published in the Lancet medical journal, was presented as a high profile series of four papers and was disseminated widely (Lawn et al., 2006). The first paper in the series discussed the scope of the problem of neonatal mortality and presented the regions in which neonatal mortality is most prevalent, the latest estimates of causes of neonatal mortality and the timeframe within which the most deaths occur (Lawn et al., 2005b).

The article noted the following most important causes of neonatal death, in descending order: infections (including tetanus, sepsis, pneumonia, diarrhoea),

complications of prematurity, birth asphyxia, congenital abnormalities, and other causes, see Figure 2.1.

Figure 2.1 Estimated distribution of direct causes of 4 million neonatal deaths for the year 2000 (based on vital registration data for 45 countries and modelled estimates for 147 countries)



Source: (Lawn et al., 2005b)

Determination of medical causes of neonatal death is notoriously difficult. Reasons for this are the high number of deaths occurring in the home (especially following home birth), difficulty getting information from family members and care givers about deaths, and multiple aetiologies (1999). Verbal autopsy has frequently been used to determine cause of death for infants and young children (Garenne et al., 2000, De Francisco et al., 1993, Ibrahim et al., 1996, Kalter et al., 1990, Coldham et

al., 2000, Anker et al., 1999). This methodology has recently been extended to the need for information on newborn death (Campbell et al., 2004, Chowdhury et al., 2005, Freeman et al., 2005).

The second paper in the Lancet series, mentioned previously in Section 1.3, identified 16 interventions with proven efficacy, defined as 'implementation under ideal conditions', for improving neonatal survival (Darmstadt et al., 2005a). These were:

- folic acid supplementation
- tetanus toxoid immuzation
- syphilis screening and treatment
- pre-eclampsia and eclampsia prevention
- intermittent presumptive treatment of malaria
- detection and treatment of asymptomatic bacteriuria
- antibiotics for preterm premature rupture of membranes
- corticosteroids for preterm labour
- detection and management of breech presentation
- labour surveillance (including partograph)
- clean delivery practices
- resuscitation of newborn baby
- breastfeeding
- prevention and management of hypothermia
- Kangaroo mother care
- community based pneumonia case management.

The authors then combined the interventions into model packages for scaling up according to service delivery mode—outreach, family-community, or clinical based care—and quantified the packages in terms of their potential to reduce neonatal

mortality. They estimated that a 50% reduction in neonatal mortality could be achieved with a package of all three delivery modes. Further, they noted that up to 37% of neonatal death could be averted by implementing, at 90% coverage, both the outreach (consisting of antenatal care) and family-community care packages. They stressed that these reductions would come mostly as a result of the family-community component.

The evidence supporting interventions listed on paper two of the Lancet series was presented in detail in a supplement to the journal Pediatrics (Bhutta et al., 2005). This is discussed below in Section 2.4.

The third paper in the Lancet series (Knippenberg et al., 2005), discussed scaling up of interventions to reduce neonatal mortality in the developing world. The article outlined the following series of steps to scale up neonatal health:

> *1) assess the situation and create a policy environment conducive to neonatal health, 2) achieve optimum neonatal care within the constraints of the situation, 3) systematically scale-up neonatal care (strengthen supply, improve demand, overcome supply and demand obstacles), and 4) monitor coverage and measure effect and cost.*

The authors asserted that this type of staged implementation would build momentum and allow gains to be realized early on. As in paper two, it was recommended that in settings where clinical care was not optimal, family and community care and outreach should be implemented first for early gains. The paper concluded by emphasizing the importance of targeting the poor and maintaining an effective monitoring and evaluation process.

The final paper in the Lancet series on neonatal survival was a call to action (Martines et al., 2005). It reiterated that countries could begin to address the issue immediately through family and community care, potentially averting a third of all deaths. An improvement in coverage of skilled attendance for childbirth was also called for, though it was noted that this would require more time and resources. Other issues addressed were accountability, sources of funding, and the need for integration through a national planning process.

Despite a call for more research on local care practices in the home during the neonatal period as part of the revived interest in newborn health, few publications were located. One of the earliest, from the Mother and Infant Research Activities (MIRA) team in Makwanpur District, Nepal, reported on perinatal care practices (Tamang et al., 2001). A report on formative care practices in Senegal, produced in 2004, was the first published material to explore newborn care practices in Sub Saharan Africa (Niang, 2004). Another study presenting the results of formative research on newborn care practices from Bangladesh was published in the Lancet last year (Winch, 2005). These studies will be discussed in Chapter Five in the context of findings from Ghana on newborn care practices.

2.3 Recommended care in the perinatal and neonatal period

In order to investigate the literature regarding key practices and their specific impact on neonatal mortality, searches were performed at the beginning of this study in Medline, Popline, and Embase using the keywords neonat* or newborn or perinat*, and mortality or morbidity or illness, along with the following terms (separately):

hygiene, cord care or umbilic*, TBA, thermal control or temperature, breastfeeding, asphyxia, care seeking. In addition a bibliographic search was conducted using a classified bibliography of controlled trials in perinatal medicine from 1940-1984 (NPEU, 1985) as well as a volume on evidence based care during pregnancy and childbirth (Enkin et al., 1989). Additional searches were conducted using the more general terms home care and neonat* or newborn with the limits practice guideline and review (separately). However, over the last two years, the Lancet series on newborn survival (Darmstadt et al., 2005a, Knippenberg et al., 2005, Lawn et al., 2005b, Martines et al., 2005) and a major review described in Section 2.4 (Bhutta et al., 2005) have been published which cover the literature originally identified through that search.

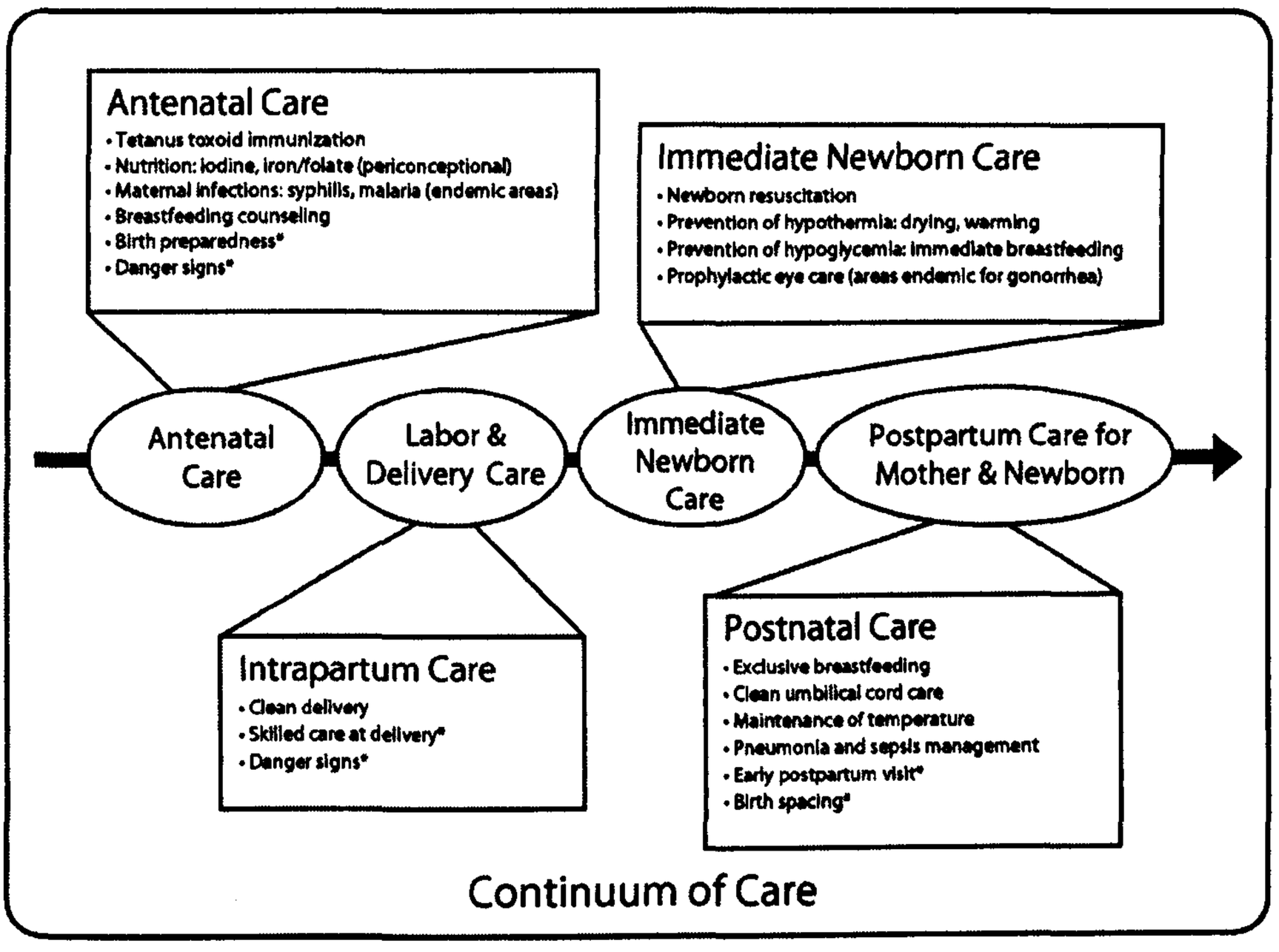
Several practices are considered essential for neonatal health before, during, and after pregnancy and birth. The following practices are recommended by the World Heath Organization and by Save the Children (SNL, 2001, WHO, 1996, WHO, 1998), and are widely recognized to be the basis for essential newborn care. In the prenatal period, women should be well-nourished, immunized against tetanus toxoid, screened and treated for infection, and educated on the importance of birth preparedness and early, exclusive breastfeeding. At the time of birth, skilled care at delivery is recommended, as is a focus on hygiene (clean hands, clean delivery surface, clean cord tying/clamping, cutting, and stump care, and clean clothes). In addition, it is essential that the newborn be kept warm following delivery by drying and wrapping the baby immediately or placing the child in skin-to-skin contact with the mother. Prophylactic eye care is also recommended in the immediate post partum period in areas endemic for gonorrhea. Asphyxiated babies must be resuscitated

immediately and special attention given to Low Birth Weight (LBW) infants. Following the birth of the child, early contact with the mother is recommended and exclusive breastfeeding should be promptly initiated and continuous. Hygiene practices should be maintained in the post partum period, along with warmth, and any danger signs recognized for early care seeking.

These recommended care practices are implemented through interventions as a continuum of care through the antenatal period, labour and delivery period, and the immediate post-partum period, as summarized in Figure 2.2 below, adapted from a recent review of community-based interventions for improving perinatal and neonatal health outcomes in developing countries.

Figure 2.2 Summary of priority interventions based on assessment of available evidence for the impact on perinatal and neonatal health status

(Bhutta et al., 2005)



Both this review (Bhutta et al., 2005), discussed in more detail in Section 2.4, and my own independent review identified that many of the recommended practices do not currently have very strong supporting evidence from trials, but rather rely on a scientific basis for biological plausibility.

Clinical practice guidelines used in developed countries (AAP and ACOG, 2002, Cloherty et al., 2003) do not address in detail the same care practices mentioned above, but rather focus on technical and hospital based interventions. Several textbooks were identified for a bibliographic search in order to locate the evidence base for essential newborn care recommendations. Among seven medical texts used as practice guidelines in developed as well as developing countries, no evidence was presented for the above key practices for essential newborn care, despite the fact that all of the texts contained the recommendations in one form or another (Hendrickse, 1981, Hendrickse et al., 1991, Davies, 1972, Morley, 1973, Stanfield, 1991, Edelson and Noel, 1992, Jelliffe, 1985).

2.4 Review of intervention strategies at community level

In the previously discussed review of interventions for perinatal and neonatal health (Bhutta et al., 2005), the authors found a paucity of community-based data available to policy makers seeking evidence based interventions to reduce mortality. A group of interventions was, however, prioritized according to robustness of evidence for an impact on peri- and neonatal mortality (summarized in Figure 2.2), and which the authors then recommended for replication. In addition to this, the article suggested research priorities for advancing the state of the art in neonatal health.

They noted that there was a particular gap in evidence from randomized controlled trials, which are clearly harder to conduct in community based settings than in clinical ones. Further, they noted that cost effectiveness data on which to base intervention choices was almost completely unavailable. Ultimately the inclusion of interventions which were considered effective in reducing perinatal mortality was based on several factors, including biological plausibility, developed country data, experience in health programmes in developing countries and recommendations by leading child health agencies, particularly the WHO.

Working from the premise that most births take place at home and thus, most newborn deaths will occur at home during the neonatal period, the review by Bhutta et al. (2005) stressed other gaps in the available research. These gaps include an appropriate understanding of household care practices in the newborn period and the determinants of those practices, as well as strategies which might aid the improvement of household practices. The article specifically points to the need for 'local formative research to better understand local beliefs and practices and the reasons behind them so that effective behaviour change strategies can be developed and evaluated. This must be followed by appropriate research to develop intervention strategies to improve care seeking behaviours at the household and community level'.

Evidence concerning three intervention strategies included in that review merits particular consideration for relevance in the context of the present study; these interventions have received international attention as viable intervention strategies

for replication. The first of these involved using trained community health workers to address newborn mortality and the other two involved initiating and strengthening women's groups for the purpose.

Bang and colleagues in India presented the results of a three year, staged intervention involving the use of trained community health workers to provide newborn care in the home (Bang et al., 1999). The study was based in Gadchiroli disctict in Maharashtra state, India in the field research area of the Society for Education, Action and Research in Community Health (SEARCH), a non-governmental organization. The baseline phase of the study was from April 1993 to March 1995 and the intervention phase was from April 1995 to March 1998. Village women with 5-10 years of schooling who were willing to work were chosen as village health workers in 39 villages, 47 villages served as controls and female village health workers were not chosen in the control area. Village health workers (VHWs) were trained to take histories of pregnant women, observe the process of labour, examine neonates, and record findings; training was also provided in case management of pneumonia in children, including neonates. Training of traditional birth attendants and management of pneumonia in children was not given by SEARCH in the control area, where these tasks were done by the government health services.

Neonatal care was introduced in the intervention villages in a stepwise manner. The first year VHWs listed pregnant women in the village, collected data at home visits in the third trimerster, observered labour and neonates at birth, visited the home on days 1, 2, 3, 5, 7, 14, 21, 28 and on any other day if the family called, to take history and examine mother and child, weighed the child each week and managed minor

illnesses and pneumonia in the neonates. They then followed up the neonates for 28 days after birth, until the mother left the village, or until the neonate died, whichever was earlier. Data from the first year provided the basis for estimates of the natural incidence of neonatal morbidities and the need for care, and to plan further interventions.

In the second year VHWs were trained in home-based management of neonatal illnesses and gave care for these from April 1996. They then managed neonatal sepsis from September 1996 in addition to their earlier tasks. In the third year, health education of mothers and grandmothers about care of pregnant women and of neonates was added.

The community workers diagnosed and treated sepsis with antibiotics, managed birth asphyxia, premature birth or low birth weight, hypothermia, and breast-feeding problems. In addition, the intervention provided assistance by trained traditional birth attendants, health education, and fortnightly supervisory visits. While significant health gains were achieved (perinatal, neonatal and infant mortality were reduced by 62.2%, 45.7%, and 71.0% respectively; $p<.001$), it is not clear which specific aspect of the intervention was responsible for the result.

Reasons given by the authors for the success of the intervention were a high baseline level of neonatal mortality, high level of coverage of the intervention, and successful management of sepsis. In addition, they noted that the intervention was highly accepted by the community based on the following: large unmet need for neonatal care, involvement of Traditional Birth Attendants (TBAs), health education, good

quality of care, availability of care in the home, successful management of sepsis, the faith of local people in injections (used to treat sepsis), and good motivation, training, supervision, and performance-related remuneration for village health workers.

The intervention strategy included training village workers in home based case management of neonatal health problems, including management of sepsis. As Bang noted, close supervision by a physician was necessary every two weeks and village health volunteers required significant training and assessment before they could perform their function. The supervising physician was also able to correct any errors in treatment, although he or she was not allowed to treat independently. Bang also noted that the female volunteers chosen were crucial to delivery of the intervention. It was necessary for them to have had at least 5-10 years of education and be literate.

Although current research replicating the project is underway (Bang et al., 2005), it is difficult to guarantee the above mentioned conditions for successful implementation in other locations. Supervision from physicians and training for health workers can be difficult to implement in developing countries with poor health service capacity. Similarly, remuneration of community workers is controversial and potentially unmanageable in many environments. Replication of this project, and its intensive approach, may not be feasible.

Another health intervention, the Warmi project, involving mobilizing community human resources, was carried out in Bolivia from July 1990 to June 1993 (O'Rourke et al., 1998). This involved initiating and strengthening women's organizations,

developing women's skills in problem identification and prioritization, and training community members in safe birthing techniques. Fifty communities participated in the project, each varying in traditions and sociodemographic characteristics. Five to six teams, including at least two nurses per team, met with community groups monthly in order to facilitate the work of the women's organizations. The strategy was evaluated by comparing the rates of perinatal mortality before and after implementation of the intervention. Substantial declines in perinatal mortality rates were observed; the area had 117 deaths/1,000 live and still births before the intervention and 43.8/1,000 after. However, the authors note that there is very limited evidence defining which individual components of the project had the most impact on this change.

As part of the intervention, women's groups were organized, a community approach to identifying problems was developed, a 'formal action plan' was implemented for the problems identified, and birth attendants and husbands were trained in safe birthing techniques. Further complicating the attribution of impact is the way in which slightly different approaches were used in each community. In order to facilitate the 'autodiagnosis' technique chosen by researchers, each community identified a different set of problems and approaches to those problems.

The intervention holds promise for addressing the problem of perinatal and neonatal mortality in resource poor settings where most births take place at home. However, the mechanisms by which the intervention is effective are not clear, making it difficult to replicate in other settings. In addition, the pre and post test design may not be considered as rigorous and reliable as data obtained from a controlled trial.

More recently Manandhar, et al. (2004) presented the results of a study using a technique similar to the Warmi autodiagnosis model. The study in rural Makwanpur district, Nepal, pair-matched 42 geopolitical clusters in the district, selected 12 pairs randomly, and randomly assigned one of each pair to intervention or control. In each intervention cluster (with an average population of 7,000), a female facilitator convened nine women's group meetings every month. The facilitator supported groups through an action-learning cycle in which they identified local perinatal problems and formulated strategies to address them. Birth outcomes were monitored in a cohort of 28,931 women, 8% of whom had joined the groups, with surveillance having begun in February 2001.

The project aimed to improve awareness of problems and knowledge of the signs of illness, as well as increase the demand for better health services. In addition, the intervention involved health service strengthening activities in both intervention and control clusters, specifically: health centres in the study area were equipped with locally made resuscitaires (open incubators that allow access to newborn babies while keeping them warm), phototherapy units, warm cots, and neonatal resuscitation equipment; some shortfalls in essential neonatal drugs were remedied (once only), and strategies for re-supply were discussed with local health-service managers; training was organized in essential newborn care for all cadres of government health staff and for female community health volunteers and traditional birth attendants, in partnership with the District Public Health Office; and community-based workers received a basic newborn care kit containing a rubber

bulb for suction, tube-and-mask for assisted respiration, iodine, gauze, a baby wrapping cloth, and a pictorial manual.

Mothers' groups met monthly on maternal and neonatal health issues, designed and implemented individual approaches to resolve issues, monitored birth outcomes and disseminated their results. By setting common goals in terms of improved birth outcomes and surveillance, improved care seeking and provider recognition of danger signs, as well as clean delivery, improved referral patterns and increased rates of early exclusive breastfeeding, striking improvements in newborn survival were documented.

Between November 2001 and October 2003, 3,190 pregnancies occurred in intervention clusters and 3,524 in controls. The neonatal mortality rate was 26.2 per 1,000 (76 deaths per 2,899 live births) in intervention clusters compared with 36.9 per 1,000 (119 deaths per 3,226 live births) in controls (adjusted odds ratio 0.70 [95% CI 0.53–0.94]). An unexpected finding was the dramatic improvement in maternal survival. The maternal mortality ratio was 69 per 100,000 (2 deaths per 2,899 live births) in intervention clusters compared with 341 per 100,000 (11 deaths per 3,226 live births) in control clusters (adjusted OR 0.22 [0.05–0.90]). This important study provided evidence that gains in neonatal survival are possible through a low cost ($111 per life year saved), acceptable (95% of groups remained active at the end of the trial), sustainable and participatory intervention.

An interesting aspect of the approach was that the educational content focused on participatory problem solving, rather than message delivery, and women's groups

were able to consider and address issues of availability and demand for health and services, rather than being presented with abstract guidelines on care practices.

One of the key activities in the design of the interventions in all three of the preceding studies was collecting relevant information on cultural and traditional care practices in the study area. A clear understanding of current home care practices among communities is necessary to begin to design an intervention to address the perinatal and neonatal care needs of those communities. Bang et al. (1999) note, 'traditional neonatal care was studied by a female social worker via unstructured interviews and actual observation of neonatal care at home'.

Similarly, the MIRA group carried out a cross sectional, community based study of newborn infants with the aim of identifying important information about newborn care practices that would assist in planning health interventions to change behaviour (Osrin et al., 2002). Prior to the implementation of the intervention, qualitative research was conducted on current perinatal care practices, problems and health seeking behaviour, with the aim of understanding and locating the behaviour within the social context (Tamang et al., 2001). The combined results of both studies provided important information for the MIRA Makwanpur intervention.

Two of the three major intervention studies mentioned above were conducted in South Asia and one in Latin America. As yet, no intervention studies of this kind have been implemented in Sub Saharan Africa.

2.5 Anthropology of Childbirth and Early Childcare

The role of anthropology in the study of birth and childcare can be traced to the work of Margaret Mead. In a groundbreaking survey article on the topic, Mead and Newton (1967) laid out the systematic nature and internal consistency inherent in childbirth practices of traditional cultures, and pointed out the need for ethnographic research into perinatal and neonatal processes as they exist in varied cultures. The following decades saw the field of anthropology of birth and reproduction flourish.

Jordan (1993) developed a framework for the discussion and investigation of different birthing systems. Her work in the Yucatan, Holland, Sweden and the United States provides a cross-cultural investigation into the sociocultural processes that constitute birth. She states, 'if we consider the ethnographic record, we find that there is no known society where birth is treated, by the people involved in its doing, as merely a physiological function'. Jordan goes on to note that birth is socially marked and shaped. Working from this basis, she proposes a biosocial framework for investigation of childbirth. The author uses evidence from ethnographic research to explain that birth is universally treated as a 'marked life crisis event', and as such the mother and newborn are subject to 'a set of internally consistent and mutually dependent practices and beliefs that are designed to manage the physiologically and socially problematic aspects of parturition that makes sense in that particular cultural context.'

A large number of ethnographies of birth have been completed in the last few decades. These are notable for the valuable information they provide about the

cultural and social shaping of the process of childbirth and care. Following the work of Jordan, much of the literature focused on describing and analyzing particular birth cultures using ethnographic techniques. A group of case studies were compiled in the MacCormack book, *Ethnography of Fertility and Birth* (1994), while others had appeared a decade earlier in Kay's collection *Anthropology of Human Birth* (1982). Many singular, in-depth ethnographies of birthing systems have also been published and some are discussed below.

Beyond describing and presenting varied cultural birthing practices as holistic systems with internally consistent parts, many of the early ethnographies of birth sought to emphasize the gradual changes taking place as a result of the influence of western biomedicine (Jeffery et al., 1989, Laderman, 1983). Many of the articles published on the anthropology of childbirth presented an image of practicable, robust, local systems of birth under threat of disruption, and in some cases extermination, by a biomedical hegemony which accorded low status to practices of indigenous people (Davis-Floyd et al., 1997).

One of the key concepts to emerge from this literature is that of 'authoritative knowledge' as it relates to childbirth and cultural patterning of behaviour.

Jordan (1993) defines authoritative knowledge in childbirth as the knowledge that forms the basis for the decisions made and the actions taken during the social production of both indigenous and 'cosmopolitan' birth. She goes on to explain that for any particular domain (i.e. birth) several knowledge systems exist, some of which, by consensus, come to carry more weight than others, either because they

explain the state of the world better for the purposes at hand or because they are associated with a stronger power base; usually both reasons apply. This concept can be very useful in determining the nature of a cultural system of health care and the foundation on which it rests. It has been used in a number of ethnographic investigations into childbirth.

While the majority of the ethnographic work to date has focused on the process of birth, and the anthropology of reproduction, the framework used to study life events can be applied to the neonatal period as well. As Jordan has noted, the power of authoritative knowledge is not that it is correct, but that it counts. When trying to understand local perceptions and ideas about birth and childcare, authoritative knowledge can be seen as extremely important. The next subsections will set out some of the key information relevant to childbirth and early childcare that can be obtained from ethnographic research and considerations of authoritative knowledge.

Regarding childbirth and child care, important concepts to learn about in their cultural context would be the constructions of normal pregnancy, normal childbirth, and a normal newborn. Anthropological methods, and in particular ethnography, can provide rich information on these concepts.

2.5.1 Pregnancy

In their research on perceptions of risk in pregnancy, Atkinson & Farias (1995) note that women in Northeast Brazil do not view pregnancy as a special event in their lives, although a number of risks are recognized as potentially harmful to the mother and child. This conceptualization, or construction, of pregnancy carries certain

ramifications for decision making about health and illness. Women may choose not to seek out any special care or prenatal care services if they view pregnancy as a normal state, for example.

Contrasting with this model, the conceptualization of pregnancy in Sweden is based on a biomedical framework wherein it is held that pregnant women should be monitored and classified according to a diagnosis of normal pregnancy versus abnormal pregnancy pronounced by a physician or nurse (Jordan, 1993). In the case of the Swedish model, it is the organizational management of the prenatal care process that separates normal from abnormal pregnancies.

In Oaxaca state, Mexico, Sesia (1997) studied constructions of normal and abnormal pregnancy and their relation to prenatal care through ethnographic research. She encountered a system in which lay midwives, *parteras empiricas* or *sobadores*, diagnose problem pregnancies through the *sobada* or prenatal massage. She states 'midwives tend to stress the *sobada*'s potential as a diagnostic and corrective tool'. It is through visits to the midwife that women in rural villages in Oaxaca come to define their pregnancies as normal or abnormal, and the knowledge held by those women becomes authoritative.

2.5.2 Childbirth

Constructions of normal childbirth vary widely and, according to Justice (1984), revolve mainly around opposing indigenous cultural practices of childbirth with the growing move towards western biomedical models of childbirth. The ethnographic literature on this topic has seen a relative explosion in recent decades.

While there are obviously many varying constructions of childbirth among different 'traditional' societies, the cross cultural comparisons of childbirth offered in the anthropological literature tend to contrast single indigenous systems against what Jordan (1993) refers to as 'cosmopolitical obstetrics'. She describes this as a system that enforces a particular distribution of power across cultural and social divisions.

Ethno-obstetric systems consist of a repertoire of practices based on common community knowledge about when pregnancy and labour become problematic, and what methods are chosen for resolving those problems.

An interesting example of the cultural constructions of normal childbirth comes from the ethnographic work of Biesele (1997) in Botswana and Namibia. Following the Ju/'hoan people of Southern Africa, she documented the construction of pregnancy and childbirth in particular as linked with the notion of correct behaviour and peaceful acceptance of fate meted out by an impersonal providence. Solitary, unassisted childbirth is considered ideal, and in her interviews with women they described it this way, 'if you give birth alone, you receive praise, and gifts of beads, and cooked food. But if you fear, and surround yourself with people, and give birth inside the house, people will laugh at you and scold you and call you fearful'.

Biesele also found that the dominant perceptions of childbirth included a construction of the act of labour as the responsibility of the woman and no one else. Although female relatives may remain with the women, it is ultimately her attitude and behaviour that determine the physiological outcome. Thus, if a woman

outwardly fears the birth, she will have a difficult labour and encounter problems, whereas if she fully accepts the responsibility of childbearing she will have an uncomplicated delivery. While this ethnography may offer a very personalized and individual construction of childbirth, its relevance to understanding birth and care within a culture cannot be overlooked. The ethno-obstetric system, where the Ju/'hoan define normal birth as taking place alone and away from assistance, can be viewed as internally consistent and can be analysed as part of a comprehensive understanding of a life event. Researchers need to understand what societies view as normal examples of childbirth in order to orient their work on health care.

2.5.3 The newborn

Another important cultural construction to consider is that of the normal newborn. In contrast to the work on pregnancy and childbirth, there is scant literature specifically on local constructions of, or practices in, the newborn period. Following a search of the anthropology literature, only two edited volumes were found including passages on the topic. In *A World of Babies: Imagined Childcare Guides for Seven Societies* (DeLoache and Gottlieb, 2000) various authors use accumulated ethnographic knowledge of several diverse cultures to produce narrative, 'imagined' advisory material regarding childbirth and the newborn period. However, given that the information is not presented in the context of specific care practices during a set time period, its value is limited. Another book, *The Manner Born: Birth Rites in Cross Cultural Perspective*, presents selected information on specific rites performed during childbirth and the neonatal period (Dundes, 2003). However it is based on secondary analysis of data collected from as early as 1901 and only as recent as 1996. The information on birth rites and traditions is interesting, but the book has an

underlying agenda: questioning the medicalization of childbirth based on this data, much of which is too old to be used for the purpose, thus limiting the usefulness of the information for more general reference.

2.6 Ethnography specific to Ghana

The anthropology literature on Ghana is rich and published work dates back to the early 1920s. Through a search of the Human Relations Area Files, as well as searches of Anthropological Index Online and Anthropology Review database, a number of ethnographies on Ghana were located. A search of the Human Relations Area Files alone retrieved 44 documents. The most pertinent examples of ethnography for this project are outlined below.

Captain Robert Sutherland Rattray produced the first ethnographic descriptions of Ghana. He was the first man to be appointed as a government anthropologist in an African colony. His work is considered to have been important in averting a new Ashanti war (Machin, 1998).

Two of Rattray's works are of particular interest to studies of birth and the newborn period. In Religion and Art in Ashanti, Rattray (1927) describes customs related to birth, although he is careful to note that males are not permitted to be present at birth and no exception was made in his case. His description of childbirth among Ashanti is as follows:

> *The actual act of parturition takes place in the room in the compound set aside for washing. Males are not permitted to be present. Four elderly women*

are generally in attendance...Dried plantain fibre is strewn upon the floor and upon this the woman sits with her back to the wall and is further supported by one of the midwives, who stands behind her, placing her arms under the arm-pits of the recumbent woman. Two other women each hold an arm. The fourth woman sits in front with her left foot under the patient's posterior and with her toe pressed against her anus. As soon as the child makes its appearance, the old women adjure the mother saying 'mia w'ani' (lit. press your eyes, i.e. strain). The woman squatting in front also assists in drawing forth the child. The umbilical cord is cut against a piece of wood. The infant is then washed with water which must not have been boiled...

This description is useful to the study of childbirth for a number of reasons. Firstly, it describes actual practices occurring in a home birth (albeit one that took place in 1927 and may no longer reflect current practices in this area). Information of the kind that Rattray presents is not generally obtainable from health surveys. Women are often not able to recall the circumstances of a birth as carefully as researchers would like. Secondly, Rattray's account gives insight into the cultural aspects underlying a birth. It is notable that men are excluded for example, that the room is used for birth is the same as the one used for washing, and that the water used to bathe the newborn must not have been boiled.

Most importantly, ethnographic accounts such as Rattray's provide important information on the physical and biological environment and practices surrounding birth at that time, although the information is no longer current. For example, no mention is made of having a clean surface for delivery. The woman sits with her back against the wall and is instructed on when to push. A midwife applies pressure

to the perineum with her toe. The umbilical cord is cut with wood and the infant is washed in unboiled water. These types of practices would have had an impact on the health of the neonate and information of this sort is crucial to the development of strategies to intervene for reduction of mortality.

In another important work on the Ashanti, Rattray (1923) discusses matrilineal descent. The key concepts that he describes are *abusua* (clan), *mogya* or *bogya* (blood), and *ntoro* (male spirit). Only women are able to transfer blood to descendants, male or female. Males do not transfer blood, but only spirit, known as *ntoro,* which is present in both males and females. Of great interest is the notion that women transmit blood through the female line alone because of the physiological conditions observed by Ashanti peoples. Namely, the presence of blood at child-birth and menstruation, is stated as the rationale for matrilineal descent.

Given the importance of women's status in society to health outcomes, especially during childbirth, the concept of matrilineal descent and women's key role in the transfer of *mogya* or *busua* becomes meaningful to the context of health interventions.

The work of Meyer Fortes is also very important in the history of anthropological research in Ghana. In the 1950s, Fortes conducted detailed investigation into the nature of kinship and marriage among the Ashanti. He notes, 'the Ashanti regard the bond between mother and child as the keystone of all social relations. Prolific child-bearing is honoured' (Fortes, 1950). In addition, Fortes found that an Ashanti birth must take place in the mother's natal home in order that the woman be under the care

of her maternal relatives, in particular her own mother, and in order that the citizenship of the child be fixed in a very tangible way.

An understanding of the cultural importance placed on transfer of lineage, and consequently, childbirth, is very useful to the design of strategies intended to improve the health of neonates. Although the information provided by Fortes and Rattray is somewhat dated, knowledge about marriage customs, childbirth traditions among particular ethnic groups, and newborn practices can feed into an understanding of how to create interventions.

More recently, Warren has added to the ethnographic literature on Ghana. His ethnography of the Techiman-Bono of Ghana provides further insight into the nature of pregnancy, birth and early childcare. He notes that it is considered improper to comment upon a woman's pregnant state. This is an important notion in that it could potentially prevent women from seeking prenatal care or other planning in preparation for her pregnancy.

Warren has reported that many Techiman-Bono women go to the hospital in order to give birth. However, he asserts that 'virtually every older [Akan] Bono woman functions as a midwife in the society and the birth may take place in the pregnant woman's mother's house' (Warren, 1975). Like Fortes and Rattray, Warren notes that men are not allowed to be present during a birth, though he states that the father is called afterwards. He also mentions that the placenta is placed in a calabash or clay pot and the father, brother, or an old woman in the house buries it near the home. Practices regarding the umbilical cord are also briefly described and it is noted

that a new razor blade is used to cut the cord, which is tied with string after being measured using a corncob. Warren reports that the newborn is bathed immediately following birth with either palm oil or a kerosene/water mixture. Finally, it is interesting that the Techiman-Bono do not consider a child fully human until the eighth day after birth. This construction of early infancy may be important in considerations of care.

It is also notable that Warren (1986) mentions the historically high rate of infant death during the period just after birth and 'the many types of charms, rituals and other aspects of religion [that] dealt with the explanation of such a high mortality.' The information gives some insight into care practices during childbirth and the neonatal period but such work could be extended with greater depth in order to contribute to strategies for behavioural intervention, which must be based on sound understanding of important cultural factors.

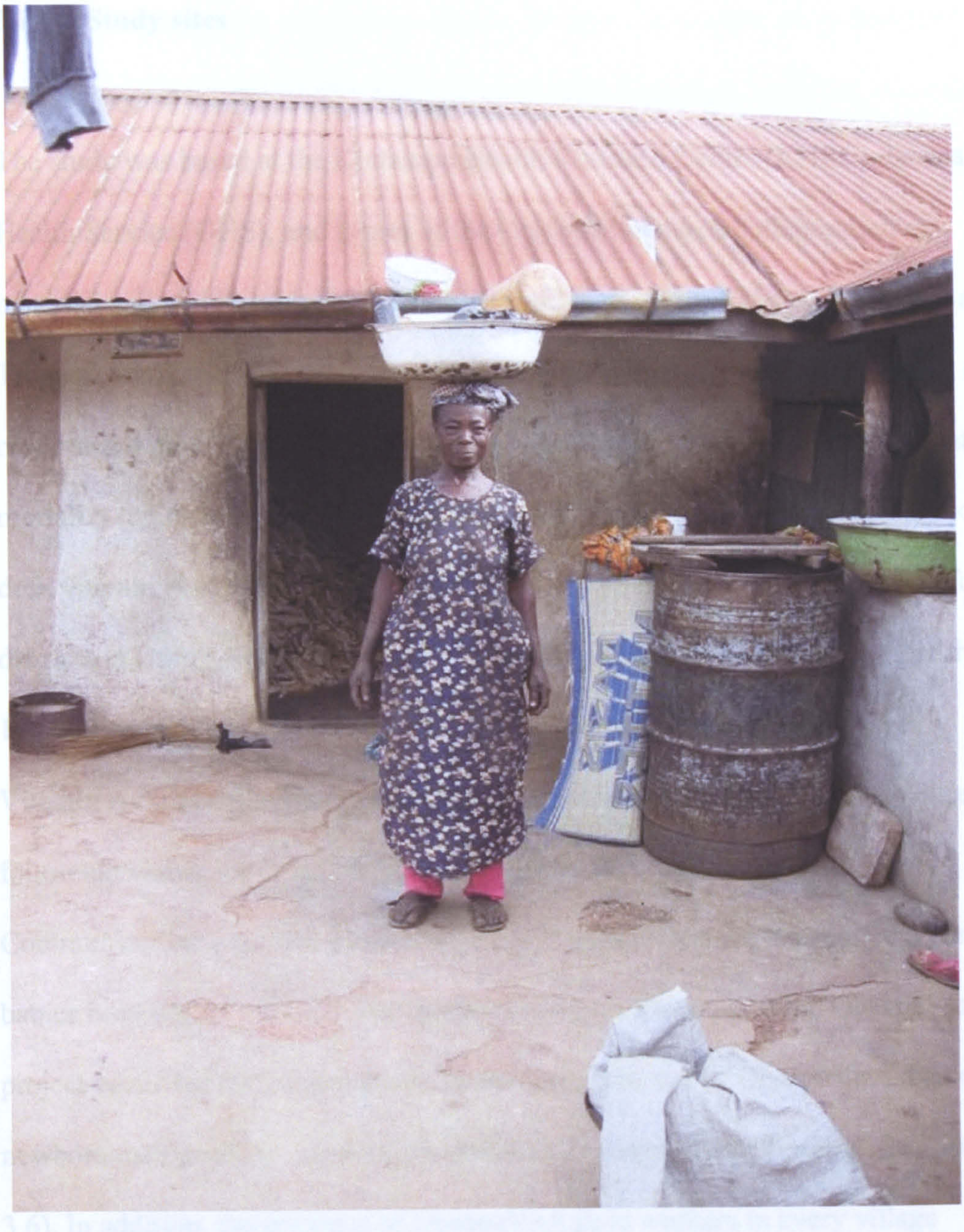
Abu (1983) provides an excellent description of marriage and residence patterns in Ashanti, as well as insight into the lives of women as they interact with their families. She notes that men have little authority over their own children, who usually live with their mothers and are cared for through the matrilineage.

The work of Gracia Clark (1989) also provides interesting information related to household structure among modern Asante women, specifically traders in Kumasi central market. She discusses the exchanges that occur, both economic and non-economic, between spouses, parents, and children. This ethnography provides insight into household allocation of resources and responsibilities. It is notable that in this

account, men are described as responsible for providing funds towards medical care for children, although women are typically financially independent and often do not rely on men to secure their own health or medical goods and services.

One of the most interesting ethnographic articles to appear recently discussed decision making in childbirth in Ghana, with the study setting of Sene District in the Brong Ahafo region (Jansen, 2006). The author, Jansen, sought to both describe the traditional structures of childbirth in Kwame Danso village and to explore why pregnant women do not make greater use of health facilities for supervised delivery, but prefer to deliver at home. Her findings suggested that cultural and social factors have a significant influence on decision making in childbirth and that the ultimate responsibility for decisions related to where a delivery would take place rested in the hands not of the woman in labour, but of her older female relatives and in-laws. The author noted that because of the high status that older women and grandmothers gain from their own experiences both in childbirth and in care of families and households, their authority was unquestioned by the labouring woman. In addition, however, these older women were described as drawing on a mixture of traditional and modern health alternatives in their decision making paradigm, often mixing the two and making rational judgements based on the available health service options and the economic, social and cultural context involved.

Figure 2.3 Ghanaian grandmother in her son's compound



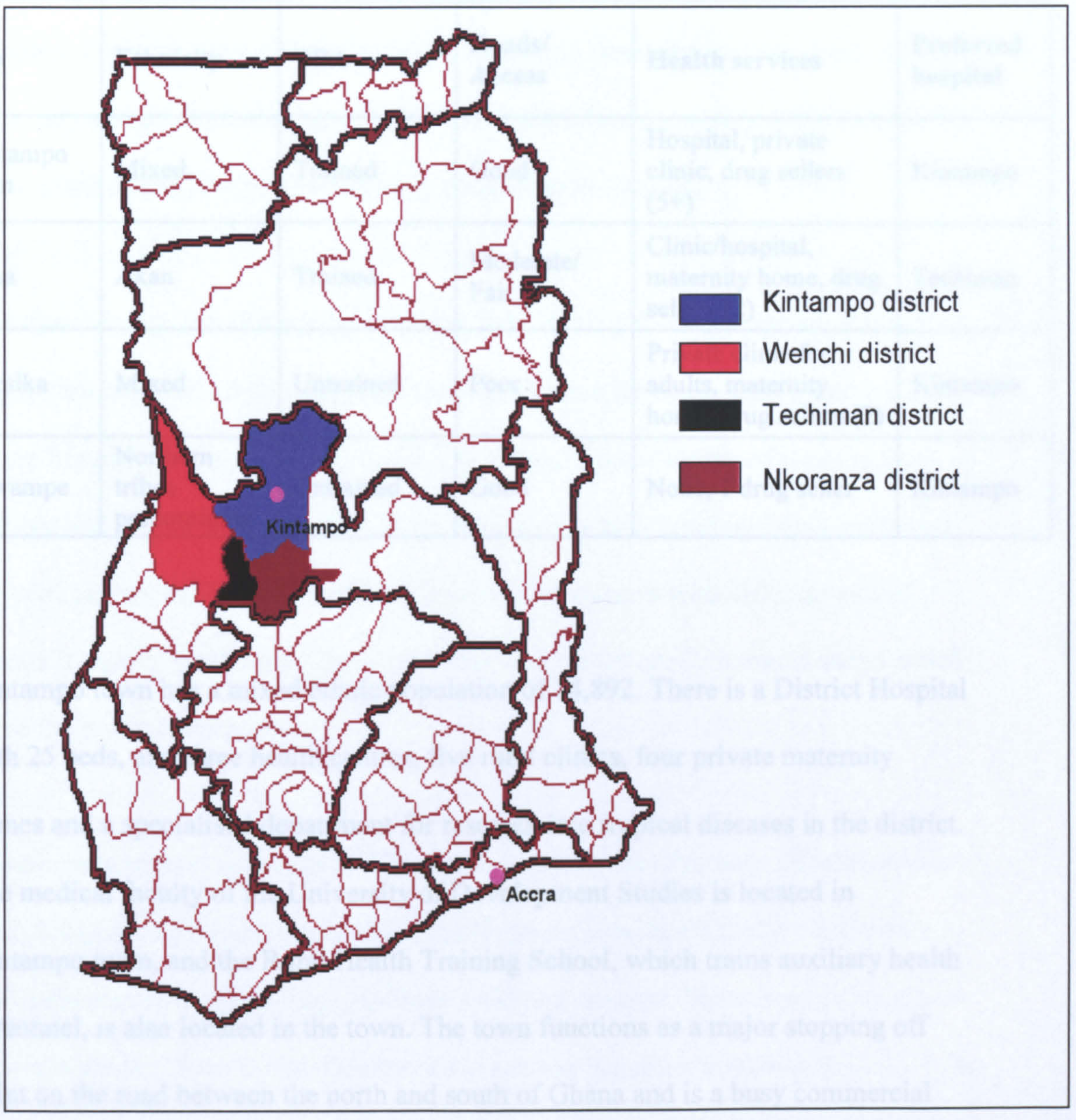
Chapter Three: Methodology

3.1 Study sites

The study was based at the Kintampo Health Research Centre (KHRC), Ghana Health Service (GHS), and is part of the long term research collaboration on maternal and child health between KHRC and the London School of Hygiene and Tropical Medicine. The study benefited from the ongoing ObaapaVitA trial, a cluster randomized double blind placebo controlled trial to evaluate the impact on maternal mortality (all cause adult female mortality) and neonatal mortality of weekly low dose vitamin A supplements to women of child bearing age. The trial covers four districts in Brong Ahafo Region (see Figure 3.1), including Kintampo; more than 100,000 women aged 15-45 are under active surveillance in the trial. Weekly Vitamin A / placebo supplementation is being delivered through regular 4-weekly follow-up visits, and is supported by a range of Information, Education, Communication activities promoting capsule taking. Data are also collected on all babies born within the trial. The facilities developed to support the ObaapaVitA project benefited the present study. In particular, the use of ObaapaVitA data on newborn care practices allowed triangulation of ethnographic findings (see Section 3.6). In addition, the presence of ObaapaVitA field workers in every village facilitated entry into the community and selection of participants for interviews, observations and group discussions. Two fieldworkers trained in the ObaapaVitA study were employed to assist with entry into the study communities and translation; they also served as key informants providing insight and knowledge regarding the community and cultural norms and care practices. The two fieldworkers were from

different ethnic groups which provided excellent diversity and insight when encountering varied ethnic groups, and one spoke two additional languages which was also very helpful in remote locations. Finally, the present study benefited from the infrastructure in place for the Vitamin A trial, including transport, computer centre, office equipment and other support.

Figure 3.1 Map showing location of ObaapaVitA trial districts within Brong Ahafo Region, Ghana



Fieldwork for this study took place in four study sites. The villages of Jema, Kawampe, and Apesika, together with Kintampo town, were purposively selected in discussion with the ObaapaVitA trial team to represent variations in size, ethnic composition, geographic distribution and access to health services in the district as summarised in Table 3.1 below.

Table 3.1 Study sites

Site	Ethnicity	TBA	Roads/ Access	Health services	Preferred hospital
Kintampo town	Mixed	Trained	Good	Hospital, private clinic, drug sellers (5+)	Kintampo
Jema	Akan	Trained	Moderate/ Fair	Clinic/hospital, maternity home, drug sellers (2)	Techiman
Apesika	Mixed	Untrained	Poor	Private clinic for adults, maternity home, drug sellers (2)	Kintampo
Kawampe	Northern tribes predominant	Untrained	Good	None, 1 drug seller	Kintampo

Kintampo town has a mixed ethnic population of 14,892. There is a District Hospital with 25 beds, and three health centres, five rural clinics, four private maternity homes and a specialised department for research into tropical diseases in the district. The medical faculty of the University of Development Studies is located in Kintampo town, and the Rural Health Training School, which trains auxiliary health personnel, is also located in the town. The town functions as a major stopping off point on the road between the north and south of Ghana and is a busy commercial enclave.

Jema is located to the south of Kintampo district on the main Kintampo-Techiman road. It has a total population of 4,578 inhabitants. Their main source of water supply is from wells, streams and boreholes. It has a health centre which has recently been turned into the district hospital (after completion of the study) for the new Kintampo South District. There is only one road which is tarred. The other road networks linking the town to smaller neighbouring communities are all untarred. There is a Senior Secondary school with several Primary and Junior Secondary Schools. There is also a private maternity home and three drug sellers. Jema is linked with the national electricity power grid. The inhabitants are mainly Akan Bono, with some other ethnic groups present; their occupation is farming.

Apesika is to the east of Kintampo and the road leading there is untarred. It has a population of 3,150 inhabitants with no electrification network. There is no health centre but one private maternity home. The village's main source of water is from streams and wells. The main activity of the inhabitants is farming. Items cultivated are yam, maize, millet and beans. It is a mixed community with different ethnic groups (Dagarti, Konkonbas, Bonos, Grushi, etc). There are 2 chemical shops which serve the entire community.

Kawampe is located to the north of Kintampo on the main Kintampo-Tamale trunk road. It has a total population of about 2,688. There is no heath facility in the area. The main source of water supply is from wells and streams. There is no electricity in the community. There is one chemical shop serving the entire community.

Inhabitants are mainly from Northern tribes including Gonja, Konkomba, Dagomba and others.

3.2 Overview of study design

The study critically examined the social, cultural, and behavioural factors that play a role in determining care practices during childbirth and the newborn period, and described those care practices. A qualitative, ethnographic study design was used together with data from a birth cohort collected as part of the ObaapaVitA trial. The specific methods used are summarised in Table 3.2. They included participant observation, semistructured interviews, in depth interviews, case histories, expert interviews, group discussions, narrative interviews from verbal autopsies, and descriptive analysis of birth cohort data. Details of each of these methodologies are given in the following Sections 3.3 - 3.6.

The qualitative element has been informed by a strong ethnographic basis and is rooted in grounded theory. Grounded theory allows for inductive rather than deductive reasoning to search for potential hypotheses in the data itself. The method can be described as emergent in that the explanatory theory or model is implicit in the data and is found there, rather than starting from a hypothesis to test the data (Glaser and Strauss, 1967). Descriptive, observational information was collected and analysed as quickly as possible in order to develop hypotheses which were then tested in subsequent fieldwork. The end use of the information has been to analyze and consider improvements in home care practices to reduce neonatal mortality, both within Ghana and worldwide. Strategies appropriate to the needs of the community

have been considered and potential benefits and obstacles of using other strategies have been taken into account.

Table 3.2 Research methodology

Research method	Data collection	Sample
Participant observation with mothers	- Actual home based perinatal and neonatal practices - Potential intervention channels and support networks	5 mother-baby dyads were observed, 1 in each of Jema, Apesika, Kawampe, and 2 in Kintampo, for a total of 84 hours.
In-depth interviews with key informants	- Community health resources - Health priorities - Delivery and neonatal care practices - Intervention channels, acceptability	14 in-depth interviews were carried out; 4 interviews in each of Jema, Apesika, Kawampe, and 2 in Kintampo.
Semistructured interviews with mothers and older women	- Intervention acceptability and potential coverage - Perceptions of normal pregnancy, delivery and childbirth - Perceptions of illness in newborns - Caring practices during delivery and for newborns	45 semistructured interviews with mothers and caretakers were completed; 10 interviews were conducted in each of Apesika, Jema, Kawampe, and 15 were conducted in Kintampo.
Case histories / narrative interviews with mothers	- Actual home based perinatal and neonatal practices - Health priorities - Potential intervention channels and support networks - Experiences of perinatal and neonatal health care	28 case histories were completed with mothers, 7 in each study site.

Research method	Data collection	Sample
Expert interviews with local health providers	- Management of neonatal illnesses - Health priorities - Delivery and neonatal practices - Intervention acceptability	Interviews were carried out with 32 providers, 8 in each study site
Group discussions with mothers, fathers and older women	- Reported perinatal and neonatal care practices - Health priorities - Intervention acceptability and potential coverage	13 FGDs were carried out; 3 FGDs were done in each of Apesika, Jema and Kawampe, and 4 in Kintampo.
Narratives of verbal autopsies (VAs) of neonatal deaths in Kintampo district from ObaapaVitA trial	- Circumstances around death - Actions taken prior to death of newborn	8 VAs were carried out for 8 newborn deaths in the ObaapaVitA trial. 50 other VAs were reviewed.
Analysis of birth cohort data from ObaapaVitA trial	- Birth and newborn care practices - Care seeking during pregnancy - Care seeking for newborn illness	2,878 births between July 2003 and June 2004 were analysed. Multiple and stillbirths were excluded.

3.3 Participant Observation

Five mothers were followed from late pregnancy through several weeks after the birth of their child between February and May 2004. Two women were followed in Kintampo and one woman in each of Jema, Apesika and Kawampe. Women were selected during the process of conducting semistructured interviews (see Section 3.4), which took place within the same time frame as beginning participant

observation. Purposive sampling was used to select women from those interviews who were likely to deliver within the next two months, and those selected were not more secretive or shy about their pregnancy than the norm in the community.

The women were from differing ethnicities and parities. A Bono woman with one child, a three year old boy, was followed in Jema. She stayed in a room (which she said belonged to her brother) with a cement floor and a small outdoor area for cooking. Her mother and aunt lived in an adjcacent room, and her husband lived in another village but visited from time to time. In Apesika, observation was conducted with a Mo woman who had no previous children; she was living with her mother and father and was not married. A Bono woman with no previous children was followed from Jema to Kintampo, where she moved to be near a relative who had a large, cement floored house in Kintampo, near to the district hospital; her husband was studying in another town. In Kawampe, a Gonja woman with three previous children, aged from three to seven, was observed. She lived in a compound with her husband and her husband's family, including his father's and uncle's co-wives. In Kintampo, a Konkomba woman with two previous children, boys of four and six years old, was observed; she was living in a rented room with her two children while her husband worked in a distant village. She did not deliver before the end of the study. A Bono woman was also observed in Kintampo, she had no previous children and lived with her mother and father.

A total of 84 hours of participant observation was carried out by the researcher (AB) with the assistance of a local fieldworker acting as translator. Daytime hours were spent in the participant's home and community. In the evenings, analysis and data

organization continued through writing up of observation fieldnotes into fairnotes, and conduct of manual coding and preliminary content analysis.

Participant observation—defined as a method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture (DeWalt and DeWalt, 2002)—proved to be the single most useful method for gathering information on actual caring practices, as well as care seeking, and was very important in the context of understanding visits to health facilities. It functioned as the foundation method for the ethnographic research.

Data collected included actual home based care practices in the pregnancy, post partum, and neonatal period. Breastfeeding, bathing, management of minor illnesses, care seeking behaviour and visits to hospitals and antenatal clinics were all observed, as were day to day domestic life including cooking, childcare, farming, household chores and rest. One woman's caesarean section was also observed, along with her time in hospital following the operation and the breastfeeding education she received by hospital staff. Also, an ill neonate was referred and transported to hospital, whereupon participant observation took place while the newborn was treated for an acute respiratory illness. Barriers and constraints to improving care practices were also observed during these sessions. Finally, valuable background information on local customs and traditions was gained from participant observation.

In participant observation there is an emphasis on everyday interactions and observations. Observation facilitated direct enquiries in context. This method

provided a unique opportunity to study actual practices occurring during pregnancy and in the neonatal period over five different contexts and situations with different participants. Conscious observation and recording took place during both usual and unusual events in the daily lives of the women followed, and the researcher participated in events such as day to day care of the newborn, cooking, travelling to health facilities and other activities.

Everyday conversation, both through direct questioning and through recording of the mother's conversation with her family and neighbours was used as an interview technique, thus tacit and explicit forms of cultural information became part of the analysis and reporting. This information was then used as a foundation for the data and also complemented the other methods used. Observation provided important information that was further explored in key informant interviews, group discussions, semistructured interviews and case histories.

Although all of the women agreed to allow the researcher (AB) to be present during their childbirth, this did not prove possible due to distances between study sites and the researcher's lodging, as well as the secrecy with which women guarded the onset of labour, even from their closest intimates. Also, during interviews and observation it became clear that women do not like to reveal that they are going into labour until that labour is well established and productive so that they are certain the birth will be imminent (See section 4.9). Given this, it was not possible to find out in time that a woman was in childbirth and then to travel to the study site where the woman was located in order to observe a birth. In addition, one woman was not able to be followed to the birth as the study finished before she delivered. However, the in-

depth information obtained regarding childbirth through other methods provided a very detailed picture of the events and actors involved in home birth in Kintampo district.

Figure 3.2 Photo of a pregnant mother from the study with her older children

3.4 Interviews

Topic guides were used for all interviews and were extensively pretested and amended as new data emerged (e.g. on bathing). The final guides which were used

are attached in Appendices I – VII for reference. Several types of interviews were used to gather data, as outlined in Table 3.2, including: in-depth interviews with key informants—specifically older women and grandmothers, semistructured interviews with mothers and older women, case histories/narrative interviews with mothers and expert interviews with health providers. All the interviews were tape recorded and fieldnotes were taken. Every afternoon, field notes were typed up into fairnotes and ongoing analysis and coding of the data took place on a daily and nightly basis using these and the researchers own notes. In addition, the interviews were transcribed and translated by the fieldworkers.

3.4.1 In-depth Interviews

In depth interviews were conducted with 14 key informants during February of 2004. Older mothers, grandmothers, and mothers-in law were selected as they have the most experience and are regarded as keepers of authoritative knowledge about maternal and child health. They were interviewed about community health resources, health priorities, delivery and neonatal care practices and acceptability of possible intervention approaches such as peer support groups and community health worker visits. Key informant interviews were conducted first in order to build a base of descriptive information on maternal and child health. They were very important as it later became clear that older women in the community are extremely influential in determining both childbirth choices and childcare practices in the newborn period (see Chapters Four and Five). Indeed, many of these women were consulted multiple times to elicit further explanation of significant care practices.

3.4.2 Semistructured interviews

Semistructured interviews were conducted with 45 women and family members from February to April 2004. The interviews covered a range of subjects and were open ended. Data collected included: perceptions of normal pregnancy, delivery and childbirth, caring practices during delivery, caring practices for newborns and perceptions of illness in newborns (including care seeking), health priorities, acceptability of potential intervention strategies, and experiences with the health system. Additional topics for investigation came from other relevant, unanticipated themes that emerged. Probing was often used to elicit information.

Semistructured interviews were useful for collection of key data and women were very receptive to the open ended nature of inquiry and the intimacy of the method. A quiet place was always found where mothers did not need to worry about neighbours or relatives overhearing or interjecting, and on the rare occasions when this did occur, the fieldworker gently asked the interjector to refrain from inserting his or her opinions. The focus on the mother, and the team's insistence on getting only the mother's view during these interviews, despite the informant or her relatives seeming confused by this special attention, provided an interesting insight into the power and social status of women of childbearing age. Most older women, and occasionally older men, were surprised that mothers were being asked detailed questions on newborn care, and typically wanted to provide the 'correct' information to us, as they, the older generation, felt that they had the authoritative knowledge.

3.4.3 Case histories/narrative interviews

In order to supplement participant observational information on actual practices surrounding care during the neonatal period, 28 case histories were taken (7 from each site) from women who had recently given birth. These women were selected following the conduct of semistructured interviews, and came from the same sample. The narrative interviews took place from February to April 2004, and yielded data on one birth in detail and an explanation of what occurred in the home during the neonatal period, including any relevant information on health care decision making. Women were purposively selected in order to provide information on differences in home care between individuals with different characteristics. The sample included primigravidae, women who had two to three children, and women who had more than three children. In addition, women were chosen based on whether they felt they had a comparatively 'easy' or 'difficult birth', and also included some whose babies had been ill during the neonatal period.

The case histories, or birth narratives, helped to refine and deepen the picture of childbirth that was obtained from the semi structured interviews. Given that participant observation of a childbirth was not possible, these narratives offered an incredibly detailed alternative and were vivid in their descriptions.

3.4.4 Expert Interviews

Interviews with 32 local health providers (eight in each site) including: two doctors, three nurses, three midwives, two community health assistants, nine TBAs, seven traditional healers, and six drug sellers, took place from February to April 2004 in

order to collect data on management of neonatal illnesses, health priorities, delivery and neonatal practices, and intervention channels and acceptability.

Although the interviews with health providers in health posts, hospitals, chemist shops and clinics were relatively straightforward, interviews with traditional health providers such as healers, spiritualists and fetish priests proved more complicated. Many of those who were suggested as potential interviewees by key informants and community members did not consider themselves to be providers of health care or herbal medicine, although they were willing to be interviewed. Often the informant would say that they were not an herbalist or healer, but just happened to know how to make a particular medicine because a relative/friend/husband had shown them. Despite this refusal to be labelled as a health provider in the community, it was clear that many people considered the person to be a healer and that numerous people had gone to them for treatment.

Interviews with health facility personnel revealed a deep disconnect between what many women and men considered appropriate day to day newborn care and what Western-medicine-trained health personnel viewed as important. In addition, it became clear that many health providers, community nurses and midwives in particular, straddle an uncomfortable line between acceptable and non acceptable practices by medical standards, and indeed that line was evident in reports of their advice (for example community outreach nurses recommending that newborn illness be treated at home with herbs).

The health provider perspective was invaluable on its own and as a source of comparison with what informants described as pressing concerns and priorities in newborn health.

3.5 Group Discussions

In addition to semistructured interviews and observation, 13 group discussions were conducted in May 2004 (three in each of Jema, Apesika, Kawampe and four in Kintampo) to collect further data and contrast views of different groups. The majority of groups were conducted with women of childbearing age who had various numbers of children and included different ethnic groups, religions, socio economic status and childbirth experiences. In addition, two groups were conducted with fathers to discuss their views on neonatal care, and one with older mothers. Data collected included: perinatal and neonatal care practices, health priorities, and intervention acceptability and potential coverage.

Other techniques, such as theatre for development (specifically, study women acting out skits to demonstrate cultural traditions) were used in group discussion settings to great effect in order to generate information on sequence of events in childbirth, support during childbirth and care practices in the neonatal period such as bathing. Cognitive maps of the body (drawn by women in the study) were also used to investigate women's perceptions about the reproductive system, their anatomy during childbirth, the position of the baby in the womb, and the physiology of reproduction and childbirth. These methods allowed a more detailed and three dimensional picture of women's knowledge and experiences to emerge and gave women an alternative to simply recounting experiences which they often remembered in more visual than literal terms.

3.6 Narrative interviews conducted during verbal autopsy

During April 2004, 8 verbal autopsies (VAs) of newborn babies who had died during the ObaapaVitA trial were carried out. The questionnaire portions of the VAs were carried out by the study fieldworkers (who were trained by the ObaapaVitA team). AB conducted the narrative case history portion of the interview with the fieldworkers acting as translators. Although mothers often found the process difficult due to the time needed to complete both the survey questionnaire and narrative interview (up to three hours in some instances), as well as the sensitive nature of the subject matter, useful information was gathered from the narrative case histories regarding the events surrounding a newborn death. The varied circumstances and individual nature of newborn's health problems provided an interesting contrast to the more commonly described illness episodes reported in interviews. These death narratives provided useful information not obtainable through any of the other methods.

In addition, 50 verbal autopsies of neonatal deaths carried out in that trial were selected at random and the narratives reviewed to identify care seeking patterns prior to death and the sequence of events that led to death.

3.7 Analysis of birth cohort data

For triangulation of the ethnographic findings, data on all 2,878 singletons born alive within the year July 2003 – June 2004 were extracted from the ObaapaVitA database for AB to analyse. The following data were analysed using STATA statistical software: location of birth, presence of an attendant, wrapping and drying after birth,

substances applied to the umbilical cord, bathing and early infant feeding practices. Women in the ObaapaVitA trial are visited 4-weekly by a network of trained village-based fieldworkers to distribute Vitamin A capsules and to collect data on morbidity and mortality. The fieldworker administers a 'birth' questionnaire at the first visit after the birth in which the mother is seen; for most mothers this ranges between 1 and 28 days after delivery. The questionnaire includes birth outcome, details of the delivery, ante-natal care, health of the mother, the health of the baby on the day of birth and in the previous 24 hours, any care-seeking, and neonatal care practices both on the day of birth and in the previous 24 hours.

Multiple births, stillbirths and neonatal deaths were excluded, as were data where the birth interview took place later than 28 days after delivery. Data for a total of 2,878 births covered most of the key newborn care practices that emerged from the qualitative research. An exception was the frequency of bathing of the newborn. This was added to the ObaapaVitA birth questionnaire following feedback from this study in 2005; this variable has subsequently been analysed for 935 singleton, live births that took place in Kintampo district between July and October 2005.

3.8 Analysis of qualitative data

As mentioned in previous sections, fieldnotes were translated and typed up into more formal notes daily so that essentially data analysis was ongoing during the entire study period. During this process, data was analyzed for emergent themes which were then coded. Following the grounded theory approach, the coding was used to identify important concepts and domains for further investigation. As hypotheses emerged, regarding for example, underlying reasons for care practices, or constraints

to changes in care practices, these hypotheses were tested in subsequent data collection through interviews or observation, thus allowing models to be developed and descriptions of care practices and underlying factors to be clarified.

During data analysis, comparison between data sources (e.g. interviews, observations, group discussions) took place on a continuous basis to ensure internal validity. After reaching a point of saturation, with no new data being accumulated, investigation of a topic (e.g. breastfeeding) was concluded. Final analysis involved elucidating the relationships between themes discovered in the data collection and proposing hypotheses or generating models to explain those relationships.

In addition to daily meetings, weekly meetings were held between the student and field workers to review findings to date, to make any adjustment to data collection plans, to follow up unexpected leads and to ensure data quality and methodological rigour. A master log of all qualitative research carried out (attached in Appendix VIII) and a personal field journal were also kept by the researcher and independently by each of the fieldworkers.

3.9 Ethical considerations and study approval

The protocol for this study was submitted for review by the relevant scientific and ethical committees in the Ghana Health Service, the LSHTM and the WHO, and the study was conducted only after the necessary approvals had been obtained both at those levels and within the individual study locations. Informed consent was always sought from each woman or family member before entry into the program of research. Different consent forms were used for different activities (see Appendix

IX). These were read to the participants and checked for understanding before consent was requested. Agreement to participate was indicated by signature or other imprint on prepared consent forms. The individual's right to refuse consent or to withdraw at any time after consent had been given was preserved without prejudice to their position in the community or to the ObaapaVitA trial. They were not required to provide explanation for their decision. Confidentiality was maintained at all times; efforts were made to ensure that interviews took place in privacy, storage of data was supervised by the researcher who had the only set of keys to filing cabinets, and no lists of informant's names was kept.

Obvious illnesses that were identified during home visits were advised to be treated at home where possible or assisted to hospital for treatment as appropriate (as in one case of severe upper respiratory distress in a newborn), but the research team made clear at all times that they were not medically trained and were not medical doctors.

Chapter Four: Pregnancy and Preparation for Childbirth

This is the first of three results chapters. It describes and discusses women's expectations of, planning for and experiences of pregnancy and childbirth, together with illness and use of antenatal and other health services.

4.1 Perceptions of pregnancy

4.1.1 Circumstances which make pregnancy welcome or unwelcome

The ability to get pregnant and deliver children is very important to women, and indeed men, in Ghana. Women who cannot get pregnant or produce children are looked down upon and pitied. However, traditional structures around the adolescent and young adult period are also in transition and changes in the nature of sexual activity, childbearing and nuptiality patterns have arrived even in rural Ghana, creating complex and often contradictory feelings about pregnancy.

When mothers were asked in semi structured interviews how they feel about pregnancy or being pregnant, they qualified their responses by noting that whether a woman is happy about being pregnant or not depends on many things, most importantly, whether she is 'married' and of an appropriate age. Being too young to be pregnant and not having a 'husband' were most often cited as the conditions under which a woman would not be happy about a pregnancy. If she were pregnant in these circumstances, a woman would be likely to 'think too much' and the pregnancy would worry her. She might have a more difficult pregnancy and encounter illness or other misfortunes.

Women did not specify an age at which pregnancy would be appropriate, but rather related the concept of being 'too young' to personal events and circumstances within a female's life, for example if she were trying to complete schooling. The concept was a subjective one and open to interpretation based on an individual's circumstances. Consequences of being too young to have a baby are that peers might talk about the woman, and she could lose the respect of her family, co-tenants and other community members. A young girl who is in school might have to curtail her studies if she became pregnant. Many of the women who were interviewed described regret at having had their first child at what they considered (in retrospect) to be too young an age.

In more traditional times, a woman would undergo puberty rites (which varied based on which ethnic group a woman was part of) and then would be expected to marry soon afterwards. More recently, the time between puberty and marriage has been extended and rites are no longer performed routinely. Premarital sexual liaisons are common and are generally accepted as they often result in 'marriage' and pregnancy (Mensch et al., 1999). However, some of these relationships do not result in 'marriage' and thus the woman is left without the support and validation that such an arrangement would provide.

Not having a 'husband' would cause a woman to be unhappy about a pregnancy. This relates both to financial and other support considerations, and also to the stigma of having a child without a father who will accept paternity. Such a pregnancy is also considered to be fraught with difficulties and problems.

As in much of West Africa, marriage in Ghana is often seen as a fluid process rather than a demarcated event in time and space. Generally, customary marriage is recognized as a union between a man and a woman with the knowledge of both families of the bride and the groom. There are three recognized types of marriage in Ghana, civic registration, religious marriage and customary marriage. Customary marriage forms the basis of all three and is the most common, especially in poor, rural areas (Mensch et al., 1999). There is no universal sequence of events for conjugal relationships, due partly to the multitude of ethnic groups and various traditions and partly due to changes in traditional structures and modernizing influences. Thus, the initiation of sexual relationships, cohabitation, pregnancy, and conferring of a bride price do not necessarily occur in a set order for every marriage (van de Walle and Meekers, 1994).

From informant's descriptions in Kintampo district, for a man to be considered a woman's husband, at minimum he would accept paternity of her child, provide at least some financial support to both the woman and the child, and sometimes share a home with them. So regardless of what type of traditional, customary, or religious marriage events had been completed, those were the criteria used for the definition this study.

Other circumstances that would cause women to be ambivalent about pregnancy include having too many children already and having financial difficulties or constraints. In many cases, having several children becomes the cause of great financial strain, so these two circumstances were often mentioned interconnectedly.

Many women spontaneously mentioned thinking of aborting an unwanted pregnancy when asked 'how do you feel when you learn you are pregnant?' The majority of women did not seem unwilling to discuss the issue and were open to discussing why and how they might seek abortion. However, this was not pursued in detail as it wasn't directly relevant to routine newborn care practices.

4.1.2 Pregnancy as an illness

Women were asked whether they equate the state of pregnancy with an illness state or a normal state. Reactions were mixed, with some women saying that pregnancy was an illness and that all pregnant women were 'sicklers', while other women resolutely stated that pregnancy was not an illness. Still others said that pregnancy was like an illness but was not a disease.

Women who felt that pregnancy was or was like an illness noted that it makes a woman tired and weak and unable to perform her daily work. In addition, they pointed out that nausea, vomiting and loss of appetite were also part of pregnancy and were characteristic of other illnesses. Most importantly, they described how the baby uses part of the woman's blood and her energy. Exploring the notion of pregnant women being sicklers proved to be very interesting and often led to a discussion of danger and pregnancy.

4.1.3 Illness in pregnancy

Informants described experiencing many illnesses in late pregnancy. Women said that during the pregnancy, and especially near to delivery, they feel weak and tired,

and can't do their normal activities or eat their normal foods. Some informants reported spotting, cramping, dizziness and blurred vision. Women did not report seeking care for these conditions other than using herbal treatments or obtaining paracetamol from a drug seller. The only circumstance for which women reported seeking care was heavy bleeding and severe pain at the end of pregnancy.

4.1.4 Vulnerability

Pregnancy is often seen as a time of danger because of how vulnerable it makes women to general illness as well as to attacks from outside forces which could make them fall ill. Enemies are everywhere, according to several informants. Enemies within one's own family were sometimes referred to as witches. One woman described an enemy as 'anyone who you have quarrelled with' or 'who does not like you', and informants said that an enemy could harm you by giving the baby an illness in the womb, such as the newborn disease *asram* (see Section 6.1.1), or by causing a difficult delivery.

Another danger frequently mentioned by women was that a pregnancy might 'overtake you' and you would not be able to do anything. This notion of being overtaken by a pregnancy referred to both a state of physical illness and to a sense of malaise which would interfere with day to day life. Women also described fear of laziness during pregnancy. Due to the burden of domestic, childcare, cooking, and farming chores, women have great concerns about not being able to do work and feeling lazy.

Many women also felt that being lazy during their pregnancy would lead to a difficult delivery. Laziness referred to not being able to accomplish daily work and chores, such as washing, collecting firewood, preparing food, etc. Other women said that they would force themselves to do difficult work during pregnancy to ward off laziness or to show others, especially in-laws, that they could 'still do hard work' and be strong even though they were pregnant. Occasionally women expressed regret that they worked too hard in pregnancy, noting that it made their delivery more exhausting.

Ghanaians are taught from a young age that laziness is a very bad characteristic. Key informants explained that parents teach their children that they must be always be self sufficient and hard working because they may need to fend for themselves unexpectedly at any time. One of the most popular sayings in Ghana is 'anything can happen,' and the need to expect the unexpected which the saying conveys seems to be present in all stages in life, including pregnancy.

4.2 Changes during pregnancy

4.2.1 Personal factors

Informants all agreed that there were many changes for women during pregnancy and were asked to list some of the changes to their personal lives. Changes mentioned by women can be divided into personal, diet, workload, residence and marital changes, as well as changes in supportive relationships. Among the most commonly cited change was that pregnant women 'become easily annoyed' with other people and become antisocial or irritable, at times not even wanting to see their

neighbours or husbands. Communities in rural Ghana are tightly knit, and members of the community depend on one another for support. Unsocial behaviour is not the norm and was considered an unwanted side effect of pregnancy.

There was also some indication that many women become depressed during their pregnancy. As noted earlier, informants freely mentioned considering abortion during pregnancy and worried about what the consequences of being pregnant would be depending on their financial situation, marital status and age. Typically women described 'thinking too much' during pregnancy and having the pregnancy 'sit on you' or 'worry you'. When the concept of 'thinking too much' was followed up, women described it as a bad thing, akin to sadness, which could lead to a person growing lean. Informants expressed fear over 'thinking too much' and the consequences it could have both for pregnancy and for a person's health in general.

4.2.2 Diet

Most women described changes to their diet which were sometimes drastic. Informants mentioned not being able to eat their normal foods during a pregnancy or wanting to eat a favourite food but being unable. This bothered women a great deal and they described it as a risk during pregnancy. The nausea and vomiting that often occurs in the first trimester and sometimes beyond caused great distress for most women interviewed. They also described 'spitting' a lot during pregnancy, which they said made them less able to eat and maintain their weight. Women were asked whether they had ever thought or heard that it could be helpful to eat less during pregnancy in order to have an easier delivery, and all but one woman said that they had never heard of that or thought of purposely reducing their food intake.

4.2.3 Workload

Information gathered from interviews with women on the topic of workload during pregnancy was often conflicting and confusing. The closely related domain of 'laziness' and the need to avoid being lazy in pregnancy ties in with this topic area. On the whole, most women agreed that they should not be doing work in pregnancy that involved cooking over a fire or carrying very heavy loads such as water or firewood. However, it was not clear how women could avoid these chores if they had no support from older children or other household members. When women were asked whether they are usually given assistance with their chores during pregnancy, most responded that they did not receive help while pregnant unless they were very ill. Others mentioned the need to show their co-tenants or other community members that they were strong and could do work.

A number of women also mentioned that doing hard work makes delivery easier, and reported a preference for working hard during pregnancy, but not over fire or with extremely heavy loads. In other regions of the world women sometimes describe eating less in order to have an easier delivery (i.e. a smaller baby), a practice known as 'eating down', but in Kintampo women said that they never eat less in order to make delivery easier, and indeed, small babies are not desirable in this context. Maintaining a reasonably strenuous workload seems to be preferred.

A small number of women mentioned that they had been advised by a doctor not to do hard work during their pregnancy. One woman who had been advised of this had had a previous stillbirth, and another was pregnant with twins. However, the ability

of a woman to avoid doing hard work depends entirely on whether she can afford to suspend or lighten her workload, a decision which has an effect on her ability to provide food for her family or to save money towards any healthcare emergencies.

4.2.4 Residence

Some informants described that changes of residence occurred in pregnancy, though these were not necessarily made as free choices or preference on the part of the woman, but rather were based on necessity, access to resources, or the prevailing ethnic tradition (whether patrilineal or matrilineal). Sometimes a woman would move to her husband's home village or to her own mother's village during pregnancy. However, there were also many cases where women reported moving to a village or town where their husband was working or studying, despite having no relatives in that location. Moving to a village where a woman has no ties can create additional stress and difficulty during pregnancy. One woman, the wife of an itinerant preacher, said that she had moved to her current location because of her husband's church, but because of the nature of his work he didn't actually live with her and their 5 children. She expressed worry over how she was going to be able to care for children during her current pregnancy with twins, since she had been advised not to work and had no friends or relatives in the area. Women who are lucky enough to have relatives near a health facility, or those with more money or financial resources than they themselves have, may move to stay with those relatives as time for delivery gets nearer.

4.2.5 Marital relations

Pregnancy causes many changes in the way a woman relates to other people, especially those within her household. The vast majority of women interviewed described changes in their relationship with their husband. Specifically they reported that with a first pregnancy, 'the love increases' with your husband because 'neither of you have ever had a baby before'. But they explained that this does not continue in subsequent pregnancies, and indeed, that a husband may be annoyed, anxious, and apprehensive when a couple begins to have many children, due to the financial burden involved. Many women felt that their husbands were much more likely to have romantic relationships with other women after they had had one or two children.

However, the main way that a couple's relationship seems to change during pregnancy is that the pregnant woman becomes annoyed with the husband constantly and is irritable with him more than anyone else. Some women explained that this was because the man had caused the pregnancy, while others related it to the fact that more financial support was needed from a man during pregnancy and often requests for money went unfulfilled.

Figure 4.1 Husband with his pregnant wife and child

Assigning paternity to a man can sometimes be complicated and a source of potential difficulty. Women said that men and husbands sometimes do not believe their wives are pregnant. For women who are unmarried, and potentially have more than one sexual partner, it may be difficult to get a man to accept that he is responsible for the pregnancy. Indeed, many women reported that it may be difficult to know who the father is. This issue is also borne out by the widely held belief that an adulterous woman must admit to her husband that he is not the real father of a child during the delivery of that child or else she will not be able to successfully deliver and may die as a result. A TBA described it this way:

The woman may not give the responsibility for the pregnancy to the right man and may give it to an innocent man, and when the woman is in labour she cannot deliver until she tells the truth, that 'Oh! This man is innocent to the pregnancy but rather this other man is responsible for it.' When the woman did not tell the true person responsible for the pregnancy, her delivery becomes very difficult. And for that one I can't do any thing with it other than tell them to send her to the hospital.

4.2.6 Support during pregnancy

The degree of support that women receive from those around them during pregnancy differs greatly depending on where and with whom they live, their relationship with family, financial situation and other factors. Informants said that they could usually get help from their mother or sisters during the end of pregnancy and in the post partum period if they really needed it. However, many women do not live near their mother or sisters, and are dependent on co-tenants, friends or in-laws for help and assistance during pregnancy.

When a woman is away from her home village, her relationship with those living around her often determines how much support she receives during her pregnancy. One informant, who was pregnant at the time of interview, explained that her relationship with her co-tenants had become strained due to her pregnancy, though she could not tell why. She said that she was very worried by the pregnancy because she did not have enough money to care for her children and herself. Her husband was living in a distant village and her mother had died. This informant noted that she was dependent on her older children to help her, but that they were in school during the day.

The reliable support and assistance of a partner, family, or friends during pregnancy may be one of the most important factors in a woman having a healthy pregnancy and childbirth in rural Ghana. A woman who has little or no support faces much more difficulty in staying healthy as there is no one to help her with her daily chores, the care of her other children, and with advice and support on health concerns. If a woman is suffering from anemia, malaria or another illness, her pregnancy will likely be even more difficult and support from those around her more crucial.

The role that support systems (including family and friends) play in helping women during pregnancy varies widely, especially given the secrecy often surrounding pregnancy and labour. On one hand, friends and family members, especially a woman's mother, may advise a woman to attend antenatal care during pregnancy. But on the other hand, they often encourage the woman to give birth at home without a skilled attendant. Many older women, especially mothers-in-law, said that the younger generations of women 'love their bodies too much' and 'waste their husband's money' by going to hospital or seeking skilled care in childbirth. Husbands and other women who have given birth at home often ask pregnant women why if the older generations were able to give birth alone at home, should they now need help? One informant said 'If it was good for my mother and her mother than it is good for me too.'

4.3 Fears and hopes during pregnancy

A number of questions were asked on the positives and negatives of pregnancy. Interestingly, many women noted that 'you are always thinking of both good and

bad'. Informants said that in Ghana this consideration of pros and cons is a common way of thinking about potentially unavoidable or uncontrollable events in a person's life.

When asked what the benefits of pregnancy are, most women could not immediately think of any, other than to say 'you will get a baby out of it'. Unlike in developed countries, no special status is conferred to women during pregnancy. Only a few women mentioned getting extra help with their chores, and other than that no benefits to pregnancy could be named. One woman said 'I will make a profit in Ghana by having a baby' which referred to whatever future support her offspring might provide.

During pregnancy women hope, and often pray, that nothing will happen to them or their baby and to have an 'easy delivery'. They described an easy delivery as one that occurs in the home, does not last long, and is not painful or complicated. Mothers said that when you are pregnant you only hope that you will 'get yourself and your baby free'.

Women described having many fears during pregnancy, foremost among them illness and death. Although they did not frequently mention their fear of death spontaneously, on probing informants often said 'of course women can die out of that.' Many people explained that during pregnancy and delivery too, women 'walk between life and death'.

Not only do many pregnant women hope for a home delivery due to financial considerations and the notion of having an 'easy delivery', but they often have an inherent fear of having a hospital birth, especially one which results in an 'operation'. When mothers recalled stories of difficult deliveries they frequently mentioned women who had to be operated on and expressed a fear of what could happen when someone 'used a knife' on them. One woman said that she always prays that she will deliver easily at the house and that people will not hear that she had to go to the hospital to deliver, or have an operation, because that would be very bad. Another woman put it this way:

> *When some women become pregnant they make her have an operation but for all my pregnancies they don't have to do me operation. Instead what people will hear is that, Oh! Abena has delivered let us go and say hello to her. I am not falling sick in my pregnancies but with some you will hear that she is sick and they have sent her to the hospital and she has even had to be operated.*

The researcher was able to attend a caesarean delivery of one of the women being followed during participant observation. This was done with the express permission of the woman and at the enthusiastic invitation of the attending doctor. Due to a previous stillbirth and subsequent difficulties getting pregnant, the informant was more open to having a caesarean section (CS) because of her fears of losing the current pregnancy and was easily persuaded by her physician after an ultrasound scan revealed placenta previa. (The physician noted that the ultrasound equipment was recently acquired and was the only such equipment available for the district and surrounding areas outside of the tertiary level hospital. He reported that it had become instrumental for him in determining the need for caesarean operations; he

was the only person at the district hospital able to operate the equipment and analyse the results, and said he was also the only doctor there performing CS.)

Throughout the operation, even when presented with her healthy newborn, the informant looked extremely fearful. Though her anaesthesia appeared to be effective in preventing any physical pain from the surgery, she nonetheless appeared to be extremely frightened and uncomfortable, perhaps due to the restraints on her wrists. Although she had grown used to the presence of the researcher (AB), due to having been followed both at home and during antenatal care visits, and had often sought information on Western care practices from AB in the past, she did not seek information or reassurance regarding what was going on during the operation (which she could not see from her position behind the surgical curtain) but rather remained silent and extremely still.

Despite her initial acceptance of the suggestion for a CS, the woman later seemed unhappy about the decision, though she was glad to have delivered a healthy baby safely. She had difficulties initiating breastfeeding under pressure from nurses in hospital and, on her return home, had a difficult recovery and developed an infection at the site of the incision. She reported that these factors contributed to her unhappiness about the operation.

It seems that women fear both the potential health consequences of having to have a caesarean section and also the stigma that it might bring to them. The pervasive notion that assigning paternity to the wrong man ends in hospital birth, and

operation, may also be part of the stigma that women fear when faced with the prospect of a hospital birth or caesarean. A TBA who was interviewed said:

> *The woman may have two men at the same time and some babies don't like that, so the baby will attack the mother in the stomach. Then, I will ask the woman whether she is having two men at the same time and did not give the responsibility for the pregnancy to the right person, and if she say yes, I will ask her to explain how that came and why she has two men. After the woman explains, I will tell her 'you have found yourself in problems, and when I couldn't manage to receive your labour, then you will have to go to the hospital'. And when she goes to the hospital they will make her an operation. The baby will sit on the woman and be worrying her.*

4.4 Preparation throughout pregnancy

Women enthusiastically talked about preparations they make during pregnancy for an impending birth. The topic was one that they seemed very comfortable discussing.

4.4.1 Supplies

Purchasing various items needed to take care of an infant were the preparations most commonly (and spontaneously) mentioned. Specifically they explained that it was necessary to buy soap, sponge and towel for bathing the newborn, flour sacks or *samboto* for covering the baby, used cloths/rags for diapers and sanitary pads, a pan or basin to wash the baby in, and to stockpile food items such as *akatoa* seeds, firewood, and other items that would be difficult for them to get after a delivery.

When asked whether they would inform anyone that they were pregnant as part of preparing a plan for the delivery, women overwhelmingly responded that they would not inform anyone that they were pregnant, not even their husbands. Some women said that they would spend time thinking of where they would deliver (i.e. at home or at the hospital), but that ultimately they could not control where they would deliver, so there was no way to prepare a birth plan.

However, most women reported that they do save money by doing 'small work' (such as trading or selling food) in case they need to go to the hospital, and said that they would borrow money if necessary from relatives or friends or 'anyone that loves you'. Generally informants noted they would not be *afraid* of asking to borrow money in an emergency because people know that women can die in pregnancy and childbirth, but further probing revealed that the necessary conditions of providing a witness to the loan or an item of value as collateral could make it unappealing or impossible.

4.4.2 Antenatal care

Some mothers said that they attended antenatal clinic as part of preparing towards their delivery, but many did not mention it as part of their preparation, although the cohort data showed that most pregnant women in the district (85.8%) attend at least one antenatal clinic visit (Table 4.1). In addition, a number of women said that they only went to antenatal clinic once in order to obtain a 'pink card' so that if they had to go to the hospital for an emergency they would be admitted easily. Many informants felt sure that if they had not attended antenatal clinic at a hospital, and

were not in possession of the 'pink card' then they would not be admitted for delivery, even in an emergency.

Table 4.1 Antenatal care in Kintampo district

Women who received no ANC care	408	14.2%
Women who had 1-3 ANC visits	1,510	52.5%
Women who had 4+ ANC visits	960	33.4%
Total	**2,878**	**100.0%**

As can be seen from Table 4.1, the vast majority of women had some contact with antenatal care services during their last pregnancy, which is an encouraging sign and in keeping with the trend reported in the most recent Ghana DHS indicating that nationally 90% of women had at least one antenatal visit. However, it is possible that a percentage went only once, in order to obtain a 'pink card' for possible hospital referral during childbirth. Only a third of women had the recommended minimum of 4 or more visits. Though the high rates of exposure to antenatal care are encouraging, the table above does show that fifteen percent of women receive no antenatal care at all, representing an important gap in coverage. Also, it is likely that women attend antenatal care during the 2nd trimester of their pregnancy when secrecy is not an issue, perhaps limiting some preventive and appropriate prenatal care.

Most women indicated that financial difficulties would be a barrier to attending antenatal clinic. Though the antenatal care services are free, many women do not realize that, and in any case would still have to find money for transportation to the clinic and for medicines prescribed. In addition, women indicated that they did not find the staff at the antenatal clinics to be very supportive or (surprisingly) to be a source for advice and information on pregnancy, childbirth and the newborn period. This may be due to the perfunctory manner in which staff often carry out visits. When one visit to an antenatal clinic was attended during participant observation, it was notable that the only interaction or dialogue between the nurse and the patient consisted of questions and answers needed to fill out the 'pink card' and instructions from the nurse to the woman to enter the room, get up on the examining table and leave the room. Whether this is more due to the shyness and reticence of the patient, or the curt manner of the nurses cannot be determined, but represents a potential barrier to antenatal services being seen as a source of advice and support.

4.5 Perceptions of anatomy/physiology

During the interviews and observations, informants often described the need to check that a baby was lying well in the stomach during pregnancy, and named that as one of the reasons to go to an antenatal clinic. During group discussions, women were asked to draw or indicate where the baby lies inside the stomach and what else, if anything, is in the woman's stomach. Some women said that there was a small hard sack filled with water which sat on top of the baby's head. This sack sometimes made it hard for the baby to come out during delivery, especially in the case of *anidane*, which also causes uterine cramps during menses. The *anidane* can take the

form of a lizard or other creature and could cause a woman's pregnancy to last up to 12 months, according to informants. They said that sometimes a TBA must 'bust' the sack with a fingernail. In addition to the small sack of water, women also said that the baby is surrounded by water where it lies in the stomach and sometimes women have illnesses that make this water very hot, which can harm the baby or cause stillbirth.

Many mothers and TBAs said that it was possible for a baby to pass through the woman's anus during delivery, an eventuality that was described as being worse than death in the minds of most informants. This belief and the fear surrounding it may be related to the occurrence of tears to the perineum, vagina, and rectum which may be common in home deliveries without the presence of a skilled attendant. Third degree tears, which compromise the integrity of the rectum, may lead to incontinence and rectovaginal fistulas, which one doctor at Kintampo District Hospital said were not uncommon in the district.

Mothers often noted that the baby changes its physical form from body to blood at different stages in the pregnancy. A number of women said that during the 2nd and 6th months the baby changes from its normal body back into blood before returning to its normal body again. The majority of women said that it was best to deliver in the 8th month of pregnancy rather than before or after that time because of the form the baby takes.

4.6 Labour and delivery

4.6.1 Preparing for labour and delivery

In semistructured interviews, participants were asked what kind of preparations women make specifically towards the delivery. Almost invariably, the first type of preparations mentioned were the purchase of items that would be needed during and just after the birth.

The concept of preparing for a delivery revolves mainly around the financial aspect of purchasing goods and items, rather than any personal or mental preparation, devising a birth plan, informing relatives, or care seeking. Indeed, other activities that were described after probing in interviews—such as attending ANC or taking herbs—tended to be described more as a form of insurance for an easy delivery than as general preparation for childbirth.

Women most often indicated that they did not feel it was possible to determine where they would end up delivering, and therefore did not put a high priority on planning that. Most informants expressed a desire to deliver at home, and indicated that home birth would be preferable. There were a number of reasons given for this. Most frequently, financial constraints were mentioned as the reason for wanting childbirth to take place at home. When women were asked whether, given unlimited funds, they would still prefer to give birth at home, most responded that if they had a lot of money, they would prefer to have a hospital birth because it would be 'safer' and 'more comfortable'.

Women also said that they take herbs in preparation for childbirth, in order to ensure an 'easy delivery' at home. Though someone reported taking herbs for the entire pregnancy, many said that they would begin taking herbs from late pregnancy and would take a particular regimen of 'easy delivery' medicine. Most women reported drinking and bathing with the herbal treatments, but some women also said they used them for enema.

4.6.2 Secrecy around labour and delivery

Informants unanimously reported wanting to keep the onset of labour hidden from those around them, even their husband or mother. A number of reasons were presented for this. Firstly, many women fear gossip or loose talk among their friends and neighbours. Such gossip might pertain to the woman's ability to deliver, the manner in which she delivers, or her condition during labour. Secondly, women indicated that by keeping the parturition a secret, they kept some measure of control and power over their circumstances. Many said that as soon as other women knew they were going to deliver, everyone arrived to give advice, often conflicting, and to direct the labouring woman. By maintaining her control of the information about her labour, the pregnant woman is able to maintain some control of her delivery.

Another frequently cited reason for keeping labour secret was shyness or embarrassment surrounding the physical aspects of birth. Not only are women naked, but there might be blood or other bodily fluids present during delivery, which women would not want others to see. In addition, many informants said that in the midst of labour women often told some of their secrets in desperation, which would be another potential source of embarrassment.

One informant put it succinctly: 'The reasons why it should be secret is that maybe what the woman will do or say and other things that happen in that room are things which she will not like other people to see.'

Another reason that women hide the onset of labour from those around them is that they fear 'wasting people's time'. Many informants said that if they were to seek help from someone at the start of labour then they would cause that person to worry unnecessarily about how long it was taking and waste that person's valuable working time waiting for the delivery. This situation could potentially cause the labouring woman to feel stressed and anxious that she was not delivering quickly enough. More importantly though, fear of wasting people's time indicates that women do not feel entitled to ask for help and assistance during early labour, thereby cutting off potential sources of support. The reluctance to use up other people's time could be a barrier to care seeking as women in labour are not usually able to seek care on their own from health providers and facilities. Further, if women are afraid to waste the time of their fellow community members and family, it stands to reason that they would be even more reluctant to waste the time of nurses and doctors in health facilities whom they revere and often fear.

The ramifications of keeping labour secret can directly affect the health of the woman and newborn. Keeping labour hidden compromises planning an appropriate location for the birth. Women who might prefer to deliver at a clinic or health facility may wait to reveal that they are in labour until just before the baby is born, making it impossible to travel to the health facility. Others who would prefer to deliver at home with the assistance of a TBA or family member may have travelled to their

farm in order to perform agricultural work and conceal the onset of their labour. One informant described having gone to work at the farm, despite having started to feel contractions of labour, in order not to alert anyone to her situation.

Another informant spoke about the need for secrecy, and the dangers inherent, in this way:

They know very well that they are in labour, and it may keep a long time before they deliver and because of that they don't want to inform anybody so that many people will come there for long to wait around. So she will wait until the last minutes before she calls someone there. She will actually be very weak before she realizes that she needs someone's help.

One woman discussed the secrecy in terms of women's desire to avoid having too much unhelpful advice from onlookers:

From the morning labour may start, but the woman knows that she will deliver in the evening and she will not inform anybody until the time is getting closer before she will tell. In the early stages someone may be telling her to push or do this or that and it wouldn't be time so she will just wait for some time before she will call somebody to help her.

In addition, some informants described fear of onlookers who might be trying to make a woman's delivery difficult by practicing witchcraft. A male informant spoke in focus group discussions about the dangers, and even likened keeping childbirth secret to a holy act practiced by Mary, mother of Jesus Christ.

There are witches who will keep their toenail very firm on the ground and the woman cannot deliver until they release their leg. They will be telling you push, push and before the baby comes the woman will become very weak and that is their work on the delivery secretly. When Mary Jesus' mother was delivering nobody knew. Before they even heard about it or realised Mary had delivered.

While women prefer to keep the onset of labour secret because of the potential benefits to them, like having less pressure and advice from others, less chance of harm by witchcraft, and less burden on TBAs or others' valuable time, what is less clear is whether they perceive the benefits of secrecy as outweighing the risks to their health. Informants repeatedly mentioned the need to 'wait until it is a delivery' before informing anyone. This phrase proved vague and difficult to define; it sometimes referred to the very end of the second stage of labour, when the baby crowns or is in the birth canal about to come out, and at other times to an earlier phase of labour or to the point where the woman is in severe pain. However, it always marked the moment that the woman was deemed in need of assistance from others.

4.6.3 Assistance at delivery

In most cases a woman will eventually have to tell someone that she is in labour, with her mother being the most likely confidante. If her husband is out working and her mother is not near, in some cases the woman will have to inform another female family member or neighbour. Once she has told someone that she's in labour, that person will usually seek help from a TBA or an elderly person in the village who is thought to have experience with childbirth. Most elderly women can be called upon

to assist in a delivery, though not all are thought to be expert. After ascertaining that it is 'definitely a delivery', the TBA or other attendant will direct the activities of the childbirth and will tell the labouring woman what to do.

If a woman has a prolonged labour and cannot deliver, she is often given herbs in order to speed the delivery. Indeed she may have been using herbs intensively in the last few weeks of her pregnancy, as one informant noted: 'Some women start to enema. If they know that this month they will deliver and the time is getting closer, they enema. She will start enema two weeks before she delivers.' (Of course it is not clear how women predict when they will deliver.)

4.6.4 Deciding to go to the hospital

In some cases women decide to go to the hospital when labour is not progressing, though they often wait until obstetric complications, such as haemorrhage, arise. When informants were asked how the decision is made to go to hospital if a woman cannot deliver, most responded that someone must actively take the decision to go. Because women do not usually plan to deliver in hospital, but attempt to give birth at home and only go to hospital if they cannot deliver at home, the decision to go to hospital is not taken lightly. Financial reasons were most commonly cited for attempting home delivery, so whoever suggests going to hospital understands that they are suggesting a potentially expensive resort. Older women assisting in the labour most often make the decision to seek treatment at a hospital or clinic, in consultation with the husband (if he is nearby) who must be consulted for financial reasons. It is hard to imagine that a labouring woman would be able to forcefully assert a wish to go to the hospital, so she is dependent on those around her to

recognize danger signs and suggest skilled care. Older females are usually the most authoritative decision makers in this matter and their influence is paramount.

In addition to financial considerations, other factors involved in making a decision to seek care during childbirth included distance to the nearest health facility, availability of transportation (which is often dictated by the time of day/night), and a woman's previous experiences of childbirth, for example whether she has gone to hospital previously to deliver.

4.7 Place of delivery

Table 4.2 shows the location of delivery for women from the ObaapaVitA birth cohort analysed for this study. The overwhelming majority of women gave birth at home, with only about one quarter having a supervised delivery in a hospital/clinic or maternity home. These figures tie in with the difficulties women cited in choosing to have a hospital birth and the complex process often involved in obtaining a hospital delivery. Not only are women not autonomous in the decision making around choosing a hospital delivery, but their financial situation, family power dynamics, and distance to the health facility all conspire to make supervised delivery out of reach for many.

Table 4.2 Place of delivery in Kintampo

Home	2,104	73.1%
Hospital or clinic	624	21.7%
Maternity home	150	5.2%
Total	**2,878**	**100.0%**

Hospital delivery follows a very different pattern from home delivery, and informants who were consulted about hospital delivery described it in detail during birth histories, semistructured interviews, and group discussions.

One of the main differences between preparing for hospital versus home birth is that items needed for the birth at home are gathered as financial constraints allow, whereas in hospital the items are compulsory and a woman will not be assisted unless she either brings them with her or purchases them from nurses or from vendors outside the hospital. This list of items needed includes many of those previously noted for a home birth but includes a minimum, *required* number of each of the following: flour sacks used for diapering, sanitary pads, used cloths, as well as a particular quantity of Dettol antiseptic, along with the usual soap and sponge. Sometimes further items are required, and the hospital or clinic to which the woman presents herself has its own individual requirements. It must be stressed that informants always described these items as being required before a woman is given care, rather than as items which are merely suggested to the woman. Informants who decided in advance of their delivery to go to hospital for childbirth described taking

some time in order to organize all the necessary supplies which would be required, as well as the money which would be needed. According to informants, a birth in hospital costs around 100,000 to 120,000 Cedis (US$10-$12), due to the user fee system, in addition to cost of needed supplies. Some women reported that unless a woman has attended antenatal care at the hospital, and can provide a pink card proving this, she may be turned away by the hospital for care during childbirth.

Many women said that it was also possible to be turned away from the hospital if the nurses or doctors found you to be in 'false labour'. Health providers interviewed also agreed that many women are sent home after they were determined to be either in false labour or not fully dilated. Given the time and expense involved for most women to travel to health facilities, it is doubtful that many of them are able to return easily when true, or active, labour starts.

4.8 Discussion

Antenatal care coverage appears to be good in the district, with a large proportion of women having at least one visit to an antenatal clinic, but questions still remain about when women attend and whether they derive meaningful treatment from a single visit. A recent study by Baiden in Northern Ghana revealed that of 4,830 women who attended an antenatal clinic in Kassena Nankana District over four years, the majority were seen in the second trimester, with only about a fifth presenting in the first trimester (Baiden et al., 2006a). This delay in obtaining antenatal care could make it more difficult to ascertain an accurate gestational age, potentially increasing the chance of unexpectedly delivering or not being able to

anticipate a premature baby who needs special care; such delay also been reported in Senegal (Niang, 2004).

In addition to other issues, pregnant women suffering from anemia or malaria who do not present until the second trimester will not receive timely treatment. In the study from Kassena Nankana District, 65% of women presenting at the first antenatal clinic appointment had haemoglobin levels of between 7 and 9.9 g/dl, indicating moderate anaemia, and 5.1% had levels <7 g/dl, indicating severe anaemia (Baiden et al., 2006a). Iron supplementation and intermittent presumptive treatment of malaria through antenatal care are both national health policy and supposedly free in Kassena Nankana. However, based on observation of women at an antenatal care clinic in the study site of Jema, these are not free in Kintampo District, further reducing the likelihood that women will receive treatment in pregnancy.

In a qualitative study conducted in the Volta region of Ghana, women reported that their work, and specifically the 'compulsory' nature of women's work generally—i.e. pregnancy, childbearing and the care and feeding of children—had enormous impacts on their health and their psychological state (Avotri and Walters, 1999). In particular, they mentioned the physical toll of their day to day workload and the fact that such work was compulsory, so that no one else could do the work for them. The overwhelming nature of women's responsibilities undoubtedly makes pregnancy and childbearing represent an added and unwelcome burden for many women, perhaps tying in with reportedly high levels of intention to abort. In addition, this notion of the unending and obligatory burden of work supports results of the qualitative research in Kintampo in which women reported that they must not 'get lazy' or 'let

the pregnancy overtake'. Working hard is recommended in pregnancy (though not carrying heavy loads or working near fire) in order to make delivery easier. This notion has also been reported in other studies in Africa (Niang, 2004) and Asia (Baqui et al., 2003). Although the concept of 'eating down' or reducing maternal food intake in pregnancy is common in many South Asian settings (Winch, 2003, Baqui et al., 2003), it was not reported by women in Kintampo.

Women are regarded as vulnerable to witchcraft during pregnancy and must not eat outside very often or expose their upper chests or abdomen in any way. Such precautions are not uncommon in other settings and the study in Senegal found that a number of behavioural conventions must be strictly followed in order to ensure the safety of a pregnant woman's health and that of her baby (Niang, 2004). In South Asia, the customs and prescribed behaviour around pregnancy and the perinatal period are even more complex and enforced more thoroughly due to ideas about 'ritual pollution' of women and birth products in the perinatal period (Winch, 2005, Baqui et al., 2003). Such customs are not observed in Kintampo and there do not appear to be any similar beliefs around ritual pollution.

Implicit preference for home births has been found in many different studies of maternal and neonatal health covering diverse regions (Niang, 2004, Hunt et al., 2002, Baqui et al., 2003). Given the cost and difficulty involved in obtaining transport, families living farther away from health facilities are even less likely to utilize health facilities for delivery unless a woman appears to be in critical condition. Even in some contexts, living relatively near to a health facility is not a

sufficient criteria for choosing a medically supervised delivery before complications necessitate such a decision (Baiden et al., 2006a).

A recent study by Jansen (2006), conducted in Brong Ahafo region in a district neighbouring Kintampo, found that older women and female relatives are the most important decision makers in determining place of delivery. Another study conducted in Ghana by Geurts (1997) found that decision making around place of childbirth was a complicated process involving mainly the woman's older female relatives and in-laws and that the time it took to come to a final decision often put the woman's life in danger.

Chapter Five: Neonatal Care Practices

This chapter will lay out the results of both qualitative and quantitative data describing newborn care practices. Delivery and the early post partum period can both be seen as liminal stages during which the woman 'walks between life and death' and the baby 'may or may not mean to stay in this world'. A liminal period refers to one where a person is 'betwixt and between', and is characterized by a sense of indeterminacy and ambiguity about the outcome. The first week of life is a liminal period for the newborn. Care practices during the first day and week of the newborn's life are subtly distinct from those performed in the subsequent weeks, and will be described in this chapter in detail.

5.1 Childbirth

During the study women were asked, through a variety of methods, to describe and elaborate on the sequence of events involved in a home birth. Thus, informants described their last home birth in detailed descriptions during open ended narrative interviews, answered semistructured interview questions related to home birth, discussed home births during group discussions with other women, and even acted out home births in skits designed to show the physical placement of the woman and her attendants.

Birth stories followed a very similar pattern throughout data collection. Below are some examples:

Pregnant women have to bathe with cold water, then their waters will break and then they call someone to help, like their mother. When it's time for delivery you go to your room and have to squat down. They will use rags on the floor and your mother will be putting a rag inside your anus (to make the baby turn) and then the baby will come. If you don't put a rag there then the [perineum] will tear and the vagina and anus will join together.

At home they put a rag on the floor and they hold you under the arms to help you stand or squat on your heels. There are not many people there at the delivery but TBA and mother, no husband, and the TBA tells you to push. It may take from morning until night, if it takes more than 24 hours women become afraid and they are very tired and may go to hospital.

You can deliver at home in your bedroom, maybe using something like a mat or cloth on the floor, but not necessarily. You can squat, sit on your heels, or sit with your legs spread out in front of you with your mother, the TBA or another old relative facing you looking for the baby. Only have others around if you need an extra pair of hands or need someone to hold you.

When labour starts and pain starts, you squat on your heels with your heels dug into your buttocks and stuff a rag into your anus and use the heel to stuff the rag and anus closed or else the baby will try to come through the anus. Then you need rags on the floor for baby to land on. You have one knee down and one up, balancing on your heels, and if you get tired then you can rest on your knees and heels a bit. My mother did it this way and she watched her mother and learned.

When you sit this way you can help the baby turn. Even those who don't see their mother all know, because girls talk about that and say this is how you do it.

After a woman in labour has called for help, typically cloths or a mat is spread on the ground in the woman's home for her to squat or sit upon. Sometimes the bare floor is used. Most informants described sitting on their heels with one knee on the ground in order to labour. Usually someone needs to hold the woman under the arms in order to prop her up when she becomes tired. Informants almost universally described inserting a rag into the anus in order to block the passage of the baby through the rectum, which was described as worse than death for a woman. In most cases, it is assumed that this is done to prevent tears or fissures in the recto vaginal area, or to prevent the woman from passing faeces during the birth, another taboo. The woman is expected to keep the rag inserted and to clench her buttocks during the birth, or in some cases a TBA will assist the woman by applying pressure to the rag with a toe or foot. The TBA will usually tell the woman to push after the baby crowns, and many informants said that it was necessary to push three times before the baby will come out. If the baby does not emerge easily, birth assistants often shake the woman or 'beat' her in order to make her push more.

As soon as the baby's head appears, the midwife or a birth attendant will insert her index fingers into the baby's ears, grasping the jaw with her thumbs, in order to pull the baby out of the birth canal as the woman pushes. One TBA said that she sometimes had to 'clear the path for the baby to come out' by inserting her hand into the birth canal. The baby is then left on the delivery surface, usually resting on a pile of used cloths in the pool of blood and fluids from the birth, until the delivery of the

placenta. Delivery of the placenta is hastened by a birth attendant pressing and pushing the women's lower abdomen or encouraging her to squat and bear down. Some women said that coughing makes the placenta move down. When women were asked what actions are taken when the placenta does not come out, many mentioned taking herbs and others said that a woman should be brought to the hospital. Informants were well aware that retention of the placenta put a woman in grave danger and they said that it threatened the life of a labouring woman. The delivery of the placenta signals to birth attendants that the umbilical cord can be cut.

5.2 Newborn care practices

The following care practices during the neonatal period were described by informants during in-depth, semistructured and narrative interviews and group discussions: cord cutting and care, wrapping and drying of the newborn, bathing, breastfeeding, resuscitation, and circumcision. Confinement at home and rites or ceremonies were also mentioned.

5.2.1 Wrapping and drying

Prior to the delivery of the placenta, the baby is left resting in the fluids created by the birth. The baby is not usually covered at all or wiped off during this phase. Drying and wrapping are not considered a high priority at this stage because the birth attendant is usually focused on the mother and the third stage of labour. Data available on wrapping and drying after the birth for 2,755 (95.7%) of the babies in the birth cohort showed that 536 babies (19.6%) were neither dried nor wrapped until after 30 minutes.

5.2.2 Cord care

Informants universally stated that during a home birth, the umbilical cord could not be cut before the delivery of the placenta. Many reasons for this behaviour were given: the baby can bleed to death, it will cause the baby's heart to stop, air will pass into the baby, the cord could disappear back up into the woman, and many responded 'we don't know how to do it that way at home, only the doctor can do that'.

In cases of emergency, women are either taken to the hospital with the placenta still attached to the newborn, or the cord is reluctantly cut and then tied around the woman's thigh in order to prevent it from 'returning to the womb'.

Informants most frequently described tying the cord off with coarse thread which has been used to braid hair and then cutting the cord with a new razor blade purchased specifically for the purpose. However, some women said that it was not necessary to tie the cord, and that it could be held or clamped tightly between two fingers before cutting. Another method described by some women involves rubbing the umbilical cord between the palms of one's hand, together with ash and saliva, in order to soften the cord for cutting. Women said that they often sent someone to purchase a blade only after the delivery of the placenta, raising questions about the availability of razor blades at potentially inconvenient times. Some informants described women having to cut the cord with any object on hand, such as a stone or a pot shard, especially when an 'imprompt' [sic] delivery occurs in the bush or at the family farm.

After the umbilical cord is cut, the placenta is immediately buried by a male member of the family. The baby is often rinsed with cold water and left to rest, and then a pot of water is put on the fire for the mother and baby's baths.

Following the birth various substances are applied to the umbilical cord. Informants all reported a desire for the cord to fall off as quickly as possible and in order to achieve this end, they described the use of various substances.

> *We want the cord to fall off fast to make the baby feel better, because, when the cord is there the baby does not feel well - the bad smell that is on the cord can enter into the baby if the cord doesn't fall off.*

Herbs and leaves of different types are applied to the umbilical cord stump with or without shea butter. The most commonly mentioned was *poli poli*. These leaves are ground up and salt is often added to the mixture which is then applied.

> *We use shea butter and herbs on that [stump] and it will completely fall off in about three days. You can also use akatoa [seeds] on the cord and you can also burn some herbs from the bush and add shea butter and salt. You can also use the poli poli leaves on the cord by grinding it, add salt and using that. But before you use it you have to put ntomago [rags] on the baby's stomach in order to prevent some of the medicine getting to part of the body which could then become a wound or sore. You can also add salt peter and shea butter to the leaves and use that on the cord. The salt peter is like salt but it has a strong and sour smell.*

Some informants said that the herbs should be chewed and then the saliva from chewing the herbs should be applied on the cord stump. Alternatively salt and chalk are mixed together and applied to the umbilicus. Ash is also often used on the cord, and is sometimes applied before cutting the cord. It is thought to encourage the baby's breathing to be stronger. A few women said that they used talcum powder on the umbilical cord before the stump fell off and then shea butter after.

Another woman described using palm kernel extract:

> *You chew the palm kernel and spit it with water into a container with salt. After that you close it and look for a fowl feather. When you put the feather in it you stir it well and apply some on the cord using the feather.*

One informant explained that bleeding immediately after cutting the cord was sometimes a problem and said:

> *In case he is bleeding through the cutting of the cord we send him to the hospital. But I can also use the liquid of canned sardines on the cord so that the blood will stop and I will not go to the hospital.*

Other informants described a black, liquid herbal medicine which is applied in cases of bleeding.

In addition to the shea butter and hot water, other substances such as herbs and salt are occasionally applied to the umbilicus even after the stump has fallen off. Shea butter and hot water are applied to the navel two to three times per day. The frequency of bathing is also reduced after the umbilical stump falls off, indicating that bathing may be used to encourage the stump to shrivel. Most women interviewed said that a baby is not fully human when the umbilical stump is there, so making it disappear as quickly as possible is a high priority. This may also be related to the prevalence of umbilical cord infections in newborns, which many health providers said was high. Informants reasoned that if the stump has fallen off, infection is less likely to occur.

Information from the birth cohort analysis presented in Table 5.1 below confirms the importance of the shea butter ritual in cord care, with more than half of respondents reporting the use of shea butter during the child's last bath. By this point in the newborn's life, application of other substances appears to be less pronounced, but still present with about 13% of families applying other substances, such as ash or chalk to the cord, and nearly ten percent applying herbs or leaves.

Table 5.1 Substances applied to the umbilical cord in the first month of life

	n	%
Nothing	259	9.0
Hospital medication	443	15.5
Shea butter	1,519	52.8
Herbs or leaves	271	9.5
Other	372	12.9
Total	**2,864**	**100.0**

5.2.3 Neonatal resuscitation

Various actions are taken when a baby is found not to be breathing or does not cry immediately after the delivery of the placenta. The most common method of attempting to resuscitate a baby is to pour cold water on the infant or to immerse the baby in a pan of cold water. Informants also mentioned trying to physically rouse or wake the baby by pinching or slapping of the skin, or by applying pepper to the baby's skin order to cause a burning sensation or a need to sneeze. A number of women also said that inserting a finger into the baby's anus was an effective way to encourage a cry or breathing. Some informants also described applying raw egg yolk into the newborn's skin as another method of attempting to resuscitate.

Most informants said that there was a difference between babies who are truly unable to cry or breathe at birth and those who are just 'tired' from the exertion of delivery. Women felt that they would not have difficulty in telling which infants

were 'tired' and which ones were unable to breathe. Those babies who are considered to be tired after delivery are left to rest for some time before any attempt at resuscitation is made. Others are immediately given attention using the above mentioned actions of splashing with cold water or other physical methods of rousing. A few TBAs said that they would blow air into the nose or mouth of the baby in order to resuscitate, but the majority of TBAs said that a baby should be brought to hospital.

Efforts to resuscitate a baby are dependent on the attendants at a delivery rather than the labouring woman, who is likely to be too exhausted to perform such actions. Informants said that they would usually wait for 30 minutes to 1 hour for the baby to spontaneously cry or breathe before deciding that the infant was dead. Given the short time frame for intervention and the average distances to a hospital in areas where home births are common, it is unlikely that many newborns are brought to the hospital for resuscitation. The staff interviewed at Kintampo Hospital and Techiman Holy Family hospital confirmed that very few neonates from outlying villages (where home births are common) are brought to the hospital for resuscitation. The majority of neonatal cases treated at those hospitals are babies that are from Kintampo or Techiman town and those that have been delivered in the hospital itself.

5.2.4 Bathing

The newborn's first bath, is given by the attendant who delivered the baby or by the newborn's grandmother or aunt, within a couple of hours after birth. The first bath sets the pattern for all subsequent baths during the newborn period. First warm water is applied to the baby, and the baby is scrubbed thoroughly from head to toe, in a

particular order and position, with a strip of woven nylon (referred to by informants as a sponge) and soap and then rinsed. Some women use Dettol or antiseptic liquid in the baby's bath water, in addition to soap. When asked why newborns need to be bathed so vigorously, mothers said that it was necessary in order to remove the bad or 'bloody' smell that babies are born with and that it was necessary to prevent the baby from having body odour later in life. During this bath, the baby may be given some of the bathwater to drink.

Following the soap and sponge bath, the still-wet newborn is massaged with shea butter. Shea butter is widely available throughout Ghana and is unrefined and unpurified, usually being sold in the form of grey, hard spheres by market vendors. After the shea butter is applied to the baby's damp skin, hot water is continuously poured over certain parts of the baby, specifically the umbilical stump, genitals and anus, using a tin or plastic cup with a hole poked through the bottom to direct the stream of water. This goes on for 5-10 minutes continuously. Often a cloth which has been soaked in the hot water will be applied to the fontanelle so that the heat from steam or vapour can enter the gap.

From the first week on, newborns are bathed 2-3 times per day. They are scrubbed with the nylon sponge, soap, and water, and are massaged with shea butter and then have hot water applied to the areas considered most vulnerable by caretakers. Babies are not towel dried (which would remove the shea butter on the skin), but are usually allowed to air dry following a bath. Reasons given for bathing the newborn so frequently were that it helps the baby to sleep well, it prevents body odour now and in adulthood, and that it encourages the baby to urinate or defecate during the bath,

which will make the baby more comfortable and lighten the mother's workload of washing.

The ritual of massaging with shea butter and applying hot water to sensitive areas of the newborn's body is also considered to be extremely important and is universal in Ghana and apparently much of West Africa. The purposes of this bathing custom in the study area are varied. Informants said that it allows a baby to sleep more soundly, encourages strengthening of the baby's body (specifically making the body 'harder' and the skin and joints tougher and thicker), and also heals the 'kru' or sores that are considered to be part of every newborn baby's anatomy.

The 'kru' described by informants are not visible to the naked eye, but are believed to exist in the fontanelle, navel, vagina or penis, and anus. These parts of the baby's body are considered to be vulnerable and need to be 'healed' or closed and sealed in order for the baby to feel comfortable and to be healthy. Most informants said that they were not sure why the 'kru' were present in a newborn, but that they believed them to exist because it is what they had been taught by their elders. Health providers who were interviewed said that many mothers mistakenly thought that because the anus or navel of a baby were red that there was a wound or sore there, and that was their interpretation of the elaborate shea butter and hot water bathing performed daily for newborns.

Analysis of the data collected in the ObaapaVitA trial strongly confirmed the results of the qualitative research which found frequent bathing of newborns to be a high priority care practice among families (Table 5.2). As can be seen, 80% of newborns

are bathed 2 to 3 times per day, and nearly 20% are bathed four or more times per day.

Table 5.2 Frequency of bathing*

Number of times newborn bathed in last 24 hours	n	%
0	1	0.1
1	12	1.3
2	322	34.4
3	417	44.6
4+	177	18.9
Unknown	6	0.6
Total	**935**	**100.0**

**Data collected from July – October 2005, see Methods section 3.6*

Several baths of newborns were directly observed. During one of these, very hot water was used during the shea butter massage and the baby squirmed and cried loudly (the temperature of the water was sufficiently high to create steam). Following the bath, the baby's umbilicus and private parts were very red and inflamed. Because the baby had been massaged with shea butter and the mother did not want to wipe the moisturizer off, the baby was not dried with a towel after the bath, but was allowed to air dry instead.

Whether this type of bathing custom is directly harmful to a newborns is not entirely clear. It does seem to encourage extended sleep for the baby and may be used as a form of toilet training.

5.2.5 Breastfeeding

Analysis of the birth cohort data showed that only about a third of newborns were breastfed within an hour of birth and another third were not breastfed until the second day after birth or later (Table 5.3). This finding corresponds closely with results from interviews in which women stated that they often did not breastfeed until the second or third day of the newborn's life at which time they believed milk to be available.

Table 5.3 Initiation of breastfeeding in Kintampo District

Time breastfeeding initiated	***n***	**%**
First hour	906	31.5
First day, but not first hour	834	28.9
Day 2	778	27.0
Day 3	298	10.4
After day 3	42	1.5
Mother did not breastfeed	20	0.7
Total	**2,878**	**100.0**

Although most women interviewed during the study said that that they breastfed their children, they invariably described having had difficulties breastfeeding their

newborn in the first 1-7 days post partum. Most described not having enough milk or having no milk in their breasts until several days after the birth. This concern with not having enough milk or not categorizing colostrum as 'real milk' is foremost in women's minds in the days following birth and has been reinforced over decades by elderly women in the community. Table 5.4 below presents the reasons for delayed initiation of breastfeeding. As can be seen from the data, a third of women felt that there wasn't enough milk to initiate breastfeeding immediately after birth.

Table 5.4 Reasons for delaying initiation until after day one

	n	%
'There wasn't enough milk'	945	32.8
Mother ill/weak	33	1.3
Child ill/weak	15	0.6
Nipple/breast problem	8	0.4
Mother working	2	0.2
Other	10	0.4
Child refused	122	4.2
NA	1,740	60.1
Total	**2,878**	**100.0**

Many women interviewed in Kintampo district, who have likely been exposed to health promotion campaigns entreating women not to give water to newborns, said that nothing at all should be given to the baby in the days just after birth since there was no breast milk available. Many recounted how in years past a mother would have called on another woman who was already nursing to breastfeed her child in the first days after birth, but that in recent times education on the dangers of allowing someone else to nurse their newborn has changed this practice. Instead, women who

said that they would give an infant something before the breast milk was available reported giving water or other pre-lacteals. Numerous informants described soaking bread in water and then giving that strained water to the baby in the first days of life. A few women said that they would use Lactogen or baby formula in the first days after birth when there was no breast milk available; it is notable that the local term for infant formula in the study area translates literally as 'white man's food'.

Table 5.5 below shows the pattern of breastfeeding on day one, when women feel that they do not yet have breast milk and are at risk of not breastfeeding exclusively. While fifty percent of women do exclusively breastfeed on day one, almost fifty percent do not exclusively breastfeed on day one and therefore a significant number of newborns are at risk of being given other substances such as water, and do not receive the protective effects of colostrum.

Table 5.5 Breastfeeding pattern on day one

Exclusive breastfeeding	1,429	49.7
Predominant breastfeeding	264	9.2
Partial breastfeeding	47	1.6
Prelacteals only on day one	412	14.3
Newborns given nothing at all on day one	726	25.2
Total	**2,878**	**100.0**

The data presented here further corroborate the results of discussions with women in which they indicated that exclusively breastfeeding on the first day is difficult or impossible because of the lack of milk in the breast at that time.

Because women have a widespread belief that there is no milk available in the breast for 3-5 days, many of them do not expect to be able to exclusively breastfeed during the first 72 hours after birth and reported not even attempting to exclusively breastfeed immediately post partum; similar results were found in the birth cohort analysis, where only about 50% of women were exclusively breastfeeding their newborns on day one (Table 5.5). Delayed initiation may make exclusive breastfeeding in the first week of life more difficult as it will impact the milk supply. One informant who was followed through participant observation had great difficulty in breastfeeding exclusively after she did not attempt to begin breastfeeding her newborn until 4 days post partum.

In order to encourage breast milk to flow following birth, many women massage their breasts with shea butter and eat foods believed to produce breast milk, such as ground nuts. Massaging the breast with shea butter, which makes the surface of the skin very slippery may make it more difficult for a baby to latch on to the breast and feed.

Many women also reported giving colostrum to their newborns, although often women could not clearly indicate whether they had or had not. In the birth cohort, almost 15% of women reported giving only prelacteal feeds on day one (Table 5.5). A few women said that the first breast milk was oily or dirty and that they did not give to the newborn but rather discarded it. A discussion with Twi speakers revealed that literal translation of the terms 'colostrum', 'first breast milk' and 'breast milk' is somewhat difficult, potentially leading to confusion on this matter.

In the first month of life, newborn babies are breastfed on demand and remain with their mother throughout the day and the night so they can be fed at any time. Water is often given to babies during this time, especially when held over their mother's legs for a bath, where it is considered beneficial to allow the newborn baby to drink water that touches the mother's leg in order to help the baby grow fat. Herbal concoctions (consisting of water in which herbs have been soaked for some time) are also commonly given to newborns. In addition, Gripe Water is widely used by mothers, not only to cure stomach ache in babies but also as a kind of vitamin, as it is believed to help a baby grow strong and healthy. Some informants reported giving newborns melted shea butter to drink when the baby suffers from constipation.

Other informants reported feeding Lactogen infant formula to their newborns, and one woman interviewed for a neonatal verbal autopsy said that a doctor had advised her to buy Lactogen to feed her newborn—who later died—because she could not provide enough milk. When listing essential items needed to care for a newborn baby, some women mentioned feeding bottles; the Ghana DHS reported the number of newborns using a bottle with a nipple at almost ten percent. Though this practice is undoubtedly limited due to financial constraints, it's appearance in the Kintampo and national data is noteworthy (GDHS, 2004).

Many women who were breastfeeding remarked that a baby must be fed from both breasts during a feeding session because 'one breast contains milk and one contains water'. When this idea was followed up, women reported that they had been taught this way by health providers. During observation, it was noted that women frequently moved the baby from one breast to another after a short time. Informants

reported that they sometimes had difficulties when breastfeeding and that they were concerned that they weren't producing enough breast milk because their babies seemed to want to feed all the time. Women noted that sick newborns and newborns suffering 'asram' often refused the breast (see Section 6.3).

5.2.6 Confinement during the first week of life

Following the birth of a child, the mother and newborn typically spend at least the first week of the baby's life inside the home if possible. It is considered unhealthy and dangerous for a mother and newborn to leave the home during the first week of life, except in cases of emergency. Newborns are considered very vulnerable to attack from physical and supernatural phenomena. It is widely thought that people who are enemies of the mother or family can harm a newborn baby using 'bad eyes'. Mothers of newborns are also vulnerable to attack from enemies with evil eyes and in addition to confinement, they often will not allow other people to watch them eat.

In Ghana, mothers and caretakers perceive environmental and physical dangers to abound for newborns in the first week of life. In particular, babies must not be exposed to outside air, which can easily enter their bodies via their skin, causing illness. Some informants said that the room where a newborn baby sleeps should always be closed to outside air as much as possible. Some informants described putting towels under the cracks of doors in order to prevent air entering the room.

Another reason that mothers and newborns stay confined in the home for the first week is so that women can physically recover from childbirth. Many mothers will have assistance during their period of confinement, either from their own mother or

from their sisters or aunts, and will be helped with daily chores and cooking for the family. Undertaking a long period of confinement following a birth is also associated with higher socioeconomic status. Women who are dependent on daily labour for their subsistence are compelled to go back to work as quickly as possible after the first week of a child's life, either to farm work or to selling food.

The 7th day of life for a newborn in Ghana is generally considered to be a milestone. In some households newborns are not named until after the first week of life. It is only after the first week of life that newborns are allowed to go outside of the house (except in cases of emergency, such as a health crisis). Many informants said that it was common for babies to become sick during that first week, and it is seen as a liminal period for the newborn baby in the eyes of her caretakers. Many informants said that the baby was not a 'real human being' until after the first week of life. One woman said that having a baby die in the first week of life was tantamount to having your own blood pour out because the baby is still blood at that point, and not a physical person yet.

5.2.7 Circumcision

When informants were asked about other care practices performed in the first weeks of life, they responded that male babies were circumcised. [Note: although there is some indication that female circumcision during adolescence occurs in the north of the country, no such practices were reported by women in this study.] Circumcision of male babies is often performed at the end of the first week of life, unless a baby is ill, in which case it can be postponed for a further week. Babies born at a hospital or health clinic tend to be circumcised at the health facility in which they were born,

while babies born at home tend to be circumcised by community members who are considered to be expert in the procedure.

Hospital circumcisions usually occur after the first week or two weeks of the newborn's life and are performed in the maternity ward by nurses or doctors using a special scissors. Babies are then sent home and mothers are instructed to apply *topaye* (tetracycline or a similar antibiotic) to the wound.

Circumcisions performed in the community are usually done by people called *wanzam* described as 'men from northern tribes' who use a 'small knife' to perform the circumcision. Though numerous informants reported having had their children circumcised by *wanzam*, no informants were able to direct the researchers to any of *wanzam* for interview.

Most mothers said that they did not witness the actual procedure performed by these men. However, one informant said that she was present at her son's circumcision, and went on to describe that a small knife was used and then a black liquid was applied to stop the bleeding. The informant said that the knife was removed from a cloth pouch and was not washed or cleaned in any way before the circumcision was performed. After-care for home circumcisions includes bathing and use of shea butter and hot water. Some women said that *topaye* capsules could be used after a home circumcision, and tetracycline is widely available through drug sellers in even remote areas. Descriptions like those of the informant who witnessed her son's procedure raise questions about the safety and hygiene practices surrounding home circumcision. Two doctors and one nurse from Kintampo Hospital said that cases of

infants bleeding to death following home circumcisions had occurred in the recent past.

5.3. Rites/ceremonies

Rites or ceremonies held for a newborn baby take place after the first week of life. Traditionally, tribes from the southern part of Ghana hold an 'outdooring ceremony' for babies at this time, although this tradition appears not to be widespread in Kintampo district, as none of the informants reported having had one. Naming ceremonies are somewhat more common and tend to occur after the first week or after the first month. Most informants said that the father of the child chooses the baby's name, and therefore, he determines when the naming ceremony will occur. Sometimes babies are named after an esteemed relative or grandparent. In such cases, the person after whom the child has been named will bring gifts (usually a fowl) to the parents and child who is one week old. One mother said that some households who follow the local spiritual traditions conduct a ceremony for the baby at the local shrine of the village. In such ceremonies a fetish priest is called upon to pour a libation and a fowl may be sacrificed in order to ensure the baby has good fortune in his or her life.

5.4 Perceptions of vulnerability in the newborn

Over the course of the observations, interviews and case histories conducted in Kintampo district, many clues about mother's perceptions of newborns were

gathered. These insights shed light on the underlying factors influencing newborn care practices.

In terms of physiology, newborns are viewed as vulnerable and delicate. Mothers said that newborns have very soft and easily moulded bodies. The skin in particular is considered very permeable, and informants frequently mentioned that air can pass through the skin and enter the internal organs of the baby.

Newborn baby's bodies are seen as fairly malleable, as well, which may stem from the belief that the baby turns from body to blood and back again while in the womb. The shea butter and hot water bathing ritual is intended in part to help stretch and elongate the limbs, and is thought to encourage a baby's limbs to grow in proper alignment. Women expressed concern about their newborns 'throwing' their arms and legs in the air, because they said that it could harm the baby and cause him or her to become ill.

Another concern that women have is that newborns may be injured if held incorrectly due to the delicate nature of their bodies. For this reason, new mothers are not allowed to bathe their babies by themselves, but must be taught by an older woman how to do it without causing harm to the baby. Even experienced mothers do not typically bathe their own child for the first week or month after birth, but rely on the baby's grandmother, the TBA who attended the labour, or an older, female relative. It is considered dangerous by many women to allow a young child to hold a newborn baby. Informants reported that handling of newborns by young children was a common cause of newborns falling sick.

In general, informants said that newborns babies did not fall sick that often in the 2nd to 4th weeks of life. Typically, this was contrasted with the situation of older infants (3 months +) whom informants considered to fall ill more frequently. This apparent contradiction in belief—that newborns are very delicate and therefore physically vulnerable but do not fall sick frequently—may be due to the fact that newborns who experience serious illness often do so in the first week of life and do not survive to fall ill frequently after that. It may also be explained by the distinction made between illnesses labelled as treatable in hospital and not treatable in hospital, discussed in the next chapter.

Figure 5.1 Baby wearing charms on ankles and wrists to ward off illness

5.5 Low birth weight/premature babies

Women were asked about whether there were any particular dangers for babies that seemed smaller than average. Most women said that they had never had a 'small' baby, nor did they know anyone who had. Only one TBA described having seen a very small baby who she 'knew wouldn't survive'. Although many women understood that having a baby in the seventh month was dangerous, and could potentially end in newborn death, virtually none of the women interviewed expressed a perception that increased risk or vulnerability extended to the daily lives of premature babies. There were no special or different care practices mentioned for babies considered to be smaller than average, despite probing.

5.6 Discussion

This chapter has provided in depth information on neonatal care practices in Kintampo district and some underlying reasons for these practices. The most important findings relate to unhygienic delivery practices, including post partum cord care, late initiation of breastfeeding, bathing, home circumcision and lack of recognition of special care practices for low birth weight babies. Those will now be discussed with attention to relevant literature from other studies, where available.

As in many poor rural areas in Sub Saharan Africa, home births are the norm in Kintampo district with nearly three quarters of all women delivering at home. This is above average for Ghana as a whole, where just over half of women deliver at home (GDHS, 2004). Hygiene practices are often compromised and women give birth on

bare, dirt floors or on piles of old cloth, similar to the delivery setting in many other poor, rural settings such as Senegal, Nepal and Bangladesh (Niang, 2004, Osrin et al., 2003, Winch, 2005). Skilled attendance is rarely available during deliveries at home, and most women rely on a local TBA, who may simply be her mother or any elderly woman within her household.

Once delivered, babies are left to rest on the floor while the birth attendant turns her attention to the labouring woman in order to complete the third stage of labour. Given that the baby is left to rest in a puddle of birth fluids until the placenta has been delivered, it is possible that early attention to the infant could be improved and more attempt to resuscitate encouraged. This practice of leaving the newborn until the delivery of the placenta has also been reported in South Asia and Western Africa and appears to be related to the belief in the importance of delivering the placenta before cutting the cord or attending to the newborn, whose breathing may not yet be regular at that stage (Niang, 2004, Winch, 2003, Gideon, 1962). The baby is thus not dried or wrapped until the placenta is delivered, potentially impacting temperature control and putting low birth weight babies and those suffering from breathing difficulties at increased risk if there are delays in the third stage. The birth cohort analysis revealed that 20 and 30% respectively of babies are not dried or wrapped within thirty minutes of the birth (an increment of time difficult for informants to estimate anyway), though this is probably an underestimation given that informant's narrative accounts of the post partum period placed the newborn, unwrapped and wet, with birth fluids on a pile of cloths until the birth attendant finished attending to the woman. A study of neonatal care in Senegal found parallel practices, which were described in this way by one informant:

After the birth we leave them there while waiting for the birth attendant. The birth attendant takes them and cuts the umbilical cord. Were the babies covered at this time? No, they are left uncovered; we wait until the birth attendant comes to them and we cover them after they have been washed (Niang, 2004).

The cutting of the cord is ideally done with a clean razor blade and many women reported having one on hand, but a significant number also mentioned having to purchase one after the delivery, indicating the likelihood that other implements might be used instead. In a study by Osrin et al. (2002), it was similarly difficult to ascertain that the blade mentioned by informants was a new, clean blade (only 33% were described as such) and often other household implements were used instead, such as sickles. In Kintampo, women reported using shards from broken pots and vigorously rubbing the cord between the hands to soften it. Niang (2004) found that in Kebemer District, Senegal a plant with a very sharp edge was commonly used to cut the umbilical cord. Some of the substances and methods used to apply substances could also increase the chances of an infection occurring and they are often prepared with untreated water or shea butter.

The same study in Senegal also found that bathing the newborn soon after the birth was a high priority for families and usually occurs immediately following the cutting of the umbilical cord. In Kintampo, informants said that it was very important to clean the baby thoroughly and to wash off the 'dirty' blood and vernix carefully. Following this, the umbilical cord is typically treated with various substances to encourage it to fall off as quickly as possible. A variety of substances were

described, including ash, chalk, salt, saliva, fowl feathers, and other potentially harmful materials. Continued application of shea butter to the cord area throughout the newborn period—a practice reported by more than half of respondents in the birth cohort analysis, mentioned ubiquitously in the interviews, and observed on several occasions—may not be as harmful as application of other substances from birth, but warrants further investigation due to recent research on topical emollients (Darmstadt et al., 2005b, Mullany et al., 2005).

Delaying initiation of breastfeeding to the third day of life may have grave ramifications for newborn mortality (Edmond et al., 2006) and has obvious implications for newborn morbidity as well. In a number of countries, formative research has shown that initiation of breastfeeding is not optimal and that there are some significant delays due in large part to beliefs related to the perceived low nutritional value and unhygienic quality of colostrum. In the study conducted by Osrin et al. (2002), it was reported that 45% of women discarded the colostrum and almost seventy percent discarded foremilk at every subsequent feed. In Senegal, two qualitative studies described delayed initiation of breastfeeding. Informants in the study by Aubel (2004) noted that elderly women advise mothers not to breastfeed until the second or third day, a pattern like that widely reported in Kintampo District; such results were reported by Niang (2004) as well. The Ghana DHS 2003 found similar practices, but noted that the trend is improving as timely initiation (within one hour of birth) increased from 25% in 1998 to 46% in 2003 (GDHS, 2004). A recent document from the breastfeeding promotion organization, LINKAGES, reported an improvement in its Infant and Young Child Feeding promotion intervention areas in Northern Ghana from 19% in 1998 to 57% in 2003, indicating

that behaviour change could provide substantial improvements in timely initiation (Adjei and Schubert, 2003). After the first week of life, however, exclusive breastfeeding levels are higher and reported to be 62% percent in children under the age of two months by the most recent Demographic and Health Survey (GDHS, 2004). Despite this, water is routinely given in the first month of life. The DHS puts the figure of newborns regularly given water at 31% percent, though that figure is likely to be much higher.

Interestingly, none of the other formative research studies on newborn care mentioned circumcision of newborns, which was reported in Kintampo as happening after the first week of life. The home practice described in this study could potentially have negative ramifications if unhygienic implements are used, as has been described by informants, and sequelae such as excessive bleeding are also dangerous for the newborn who is circumcised at home.

A recent analysis by Edmond et al. (2006) of birth cohort data from all four districts in the ObaapaVitA trial, including Kintampo, showed that for the 3,254 babies with available birthweight data (born in hospital), 0.7% were very low birthweight (<2 kg) and that a further 6.7% were low birthweight (2.00-2.49 kg). However, only about a third of mothers of the very low birth weight babies perceived them as being very tiny (Table 5.6); 43.5% perceived them as being smaller than average, and 21.2% as being average size. Among the low birth weight babies, 26.1% of mothers perceived their baby to be smaller than average, and 61.5% as being average size.

Table 5.6 Mother's perceptions of newborn's size at birth

Perception of birth size	Birth weight in kg (measured within 48 hrs of birth)			
	< 2	**2.00–2.49**	**2.50–3.49**	**3.5+**
Very tiny	8 (34.5%)	6 (2.8%)	8 (0.4%)	1 (0.1%)
Smaller than average	10 (43.5%)	57 (26.1%)	97 (4.4%)	3 (0.6%)
Average size	5 (21.7%)	134 (61.5%)	1389 (62.9%)	261 (32.0%)
Larger than average	0	21 (9.6%)	388 (17.6%)	248 (30.4%)
Very big	0	0	326 (14.8%)	302 (37.1%)
Total	**23 (100%)**	**218 (100%)**	**2208 (100%)**	**815 (100%)**

Adapted from (Edmond et al., 2006)

This lack of recognition has important ramifications for care practices that may impact newborn survival. There are a number of practices that would improve the chances of a low birth weight baby surviving, such as thermal control and early skin to skin contact, and there are also practices currently used by women that may have a detrimental effect on the chances of a LBW newborn surviving, frequent bathing and delayed initiation of breastfeeding being of particular concern.

Chapter Six: Newborn Illness, Death and Care Seeking

In the context of seeking to improve newborn care practices, an understanding of how parents and caretakers perceive and react to newborn illness is essential. This study aimed to capture a picture of illnesses that affect newborns, perceptions and understandings of newborn illness by parents and caretakers, and factors involved in care seeking decisions. Newborn death and the prevailing attitudes and experiences of it were also investigated.

These topics were explored using various methods such as participant observation (including one ill newborn followed through a hospital visit), in depth and semi structured interviews, group discussions and death narratives. A review of approximately 50 verbal post mortems was also undertaken in an effort to better understand newborn illness which leads to mortality. Death narratives provided further data. Informants included mothers of newborns, grandmothers, fathers and health providers (midwives, nurses, TBAs, traditional healers and doctors), all of whose knowledge of and approach to newborn illness are vitally important to understanding careseeking decision making.

6.1 Newborn illness

Two illnesses were mentioned as specifically affecting newborns, *asram* and *asram-puni*. Qualitative data collection also focused on exploring symptoms of illness that affect newborns. The most universally recognized symptoms of illness in newborns are excessive crying and growing lean due to not taking much breast milk. Other commonly cited symptoms of illness are constipation ('when the baby cannot go to

toilet'), diarrhoea, cough, fever or 'hot body', vomiting, stomach pains (especially related to the umbilical cord), and occasionally reported, convulsions.

6.1.1 Asram and asram-puni

Asram in newborns, which apparently has no corollary in Western medicine, is characterized by 'green veins' on the baby, who grows lean and cries very often. It is possible that parents and caretakers in the study area consider any illness in newborns to be 'an asram', especially if that illness is prolonged/does not resolve after a few days and especially if it is present from birth. Asram is considered to be the foremost problem for newborn health and almost all cases of severe illness in newborns are ascribed to asram.

Closely related to asram, and always occurring simultaneously with asram, *puni* was described as an illness characterized by changes of the baby's skull, specifically meaning either a gap in the middle of a baby's head, a line down the middle of the head, or a very enlarged head with a gap. The symptoms were virtually similar in every other way to those of asram (not surprising considering that they occurred simultaneously). Contrary to expectations, these changes in the baby's skull were not necessarily described as relating to the fontanelles, though some informants said they could be related to the anterior fontanelle, a part of the newborn anatomy which informants universally recognized and could point out.

The causes of asram and asram-puni are universally thought by informants to be personalistic, that is to say, a person (intentionally or sometimes unintentionally) gives the illness to the baby, either after birth or while in the mother's womb. This

happens by looking at the baby or pregnant woman with an evil eye, especially if the woman exposes her pregnant stomach or décolleté, or eats outside the home. Those who transmit asram are also thought to be the people who have the medicine (herbs) to cure it and/or are jealous of the woman's good fortune, although some transmission of the disease is considered to be 'unintentional' and simply unavoidable. Informants sometimes said that the only way to cure asram was to get traditional medicine for it from the person who gave it to you (and to pay them something for that) or to find someone else who knows the asram medicine. It became clear through interviewing various traditional healers and herbalists that different people use different herbs to cure asram and that there is no single, authoritative preparation for treating the illness, although informants were adamant that there is a specific medicine for each illness.

Perhaps because it is thought that the person who has the medicine for asram may give it to others, informants versed in asram medicine were not forthcoming and, when found, often sounded uneasy while discussing their cures for the illness. They commonly said things to the effect of, 'I only know the medicine because my Uncle showed it to me'. Several said that their relatives or spouses had known the medicine and they only learned it before the death of that person by watching what they did.

Similarly, mothers and other villagers did not readily identify many people who had the medicine for asram, either because they feared accusing those people of being witches or possibly because there simply are not many people who know the cures for asram within each community. The second hypothesis would confirm the

difficulty that parents and grandparents described with finding a cure for asram, which seems to afflict so many newborns and children.

When asked whether doctors and hospitals could cure asram, most informants said that they didn't know if that was possible, but they seemed cautiously open to the possibility. Rather than simply refuting the possibility, most seemed to be unclear and to want clarification from the research team. Such confusion was also evident in the treatment patters in seeking care for asram. Families seemed to often go to the hospital when newborns were severely ill, but ascribed a disease to asram when the hospital and its medicine did not cure illness. Many informants said that they were told at the hospital by a nurse that their child has asram and were advised to go home and 'look for local medicine'. Still others mentioned trying local medicine first for asram and then going to the hospital if the baby was not improving. There was a general agreement amongst all informants that local medicine and herbs were best for babies, but that did not seem to preclude them from giving Western medicines. And, in addition to herbs and hospital treatment, some informants said that newborns were treated with medicines from drug sellers such as paracetamol, Gripe Water, and even chloroquine.

6.1.2 Stomach pains

Many informants described stomach pains in a newborn as a sign of illness and described ill newborns as frequently stretching their bodies because of stomach troubles. More specifically, newborn stools are often of concern to parents. For example, one woman described 'green toilet' and 'egg toilet' being symptoms of a stomach illness. 'Watery toilet' is said to be caused by the mother eating mango.

(Toilet is the word used for stool in Twi translations to English.) Constipation is also recognized by parents as a symptom of illness and newborn babies are given enemas when it is felt that they have not gone to toilet in a long time or that they are having stomach pains from not passing stool.

On probing parents said that a child should go to toilet at least every day and that not going to toilet for one or two days constitutes a problem for a baby. Herbs are often used in the enemas.

Many informants described the umbilical stump as causing pains and illness in newborns. The symptoms of this are thought to be a baby crying from stomach pains, a hard stomach, noises emanating from the stomach, a baby stretching their arms and legs, or the umbilical stump getting red and hot.

6.1.3 Cough

Cough was described as a symptom of illness in newborns and the main cause thought to be air passing through the body due to not enough clothing on or wrapping of the child. Similarly, during childbirth and in the postpartum period there should not be air entering the room lest that air passes through the child's body to cause a cough.

During participant observation with a woman who had delivered the previous week, it became obvious that the baby was suffering from a severe respiratory infection. Prior to the visit, the mother had noticed the baby's breathing was very laboured and that she had a cough with chest in-drawing, but had not thought that these were

dangerous signs which would indicate the baby needed to go to hospital. Such difficulties in recognizing when illness symptoms become serious can have disastrous consequences for newborns, especially in that it can often take a long time to organize transport once a decision is made to seek care. Although cough due to respiratory illnesses is an important sign of illness in newborns, none of the women interviewed mentioned cough as a sign of a potentially serious or severe illness, but more as a nuisance illness. One informant said that newborns can have cough from air passing through them or from fever, but she only grouped this as a newborn illness after elicitation and probing. Only one woman, from the town of Kawampe, stated that cough was a serious illness and needed to be treated at hospital.

6.1.4 Vomiting

Vomiting was also mentioned as a sign of illness, and one woman, whose child began vomiting during an interview, had said that she was troubled by it, but unsure what to do about the condition. She had been prescribed a liquid medication for the baby by a hospital doctor and the baby had been vomiting intermittently for some time, so she decided to stop giving the medication on the premise that it was causing the baby to vomit. However, the medicine was an antibiotic prescribed for an ongoing infection the baby had. Like coughing, vomiting is seen to be a less severe, but troublesome symptom of illness in newborns. Women also did not mention the need to rehydrate newborns who had been vomiting, or to continue to offer small amounts of fluid, but rather approached vomiting as a time to cease giving extra fluids to a newborn. Informants said that it was sometimes hard to get a baby to breastfeed much, though it was not reported that breastfmilk should be withheld for this symptom.

6.1.5 Diarrhoea

Diarrhoea was frequently mentioned as a symptom of illness in newborns and many mothers mentioned 'running' or 'egg toilet' as a problem in newborns. An informant in Apesika described *adoko*, an illness of green toilet in a newborn, and *ananasono* or egg toilet, which she said can happen to newborns as well as older children. She said that herbs were used to treat all such illnesses and felt confident that all types of diarrhoea would respond to traditional medicine, rather than needing to be taken to the hospital. Although diarrhoea was mentioned frequently by mothers as a sign of illness in newborns, it became clear that it was common and attracted little concern or care seeking unless it was simultaneously accompanied by other symptoms or illnesses. Interestingly, diarrhoea was not ever mentioned in the context of asram or implicated as a symptom of asram. Also, rehydration or the use of oral rehydration salts was never mentioned by women as a treatment for diarrhoea, but rather, most indicated that they would give herbs and reduce extra liquid the baby received, as with vomiting.

6.1.6 Fever/Hot body

Fever or hot body was mentioned by most women as a sign of illness in a newborn, and many informants described the use of malaria drugs obtained from drug sellers in order to treat persistent fevers. One health provider, a nurse in the labour ward of Kintampo Hospital, said that they typically tried sponging a baby with water in hospital before using paracetamol or other fever reducers. Women also described bathing the baby in cool water at home and using herbs to treat fever. It seems that a

large number of informants conflated fever or 'hot body' with malaria, and were unaware that congenital or placental malaria is relatively uncommon.

6.1.7 Convulsions

Although some women stated that newborns also suffer from convulsions, there was some dispute about this amongst informants, and mixed responses on the topic. In a focus group discussion in Apesika, two women disagreed about whether convulsions can affect newborns:

> *Moderator: What illnesses do the newborns get?*
>
> *First woman: The newly born can have stomach pains, convulsions, and ear pains.*
>
> *Second woman: The newborn cannot be attacked by convulsions. When the baby has an anus sore only he can get convulsions, once he is sitting on the ground.*

Since convulsions or seizures in a newborn just after birth usually indicate a very severe condition, such as hypoxic-ischemic encephalopathy or sepsis, it is important to note that some women are not aware of the possibility of newborns having seizures or do not recognize the potential lethality of illnesses associated with this symptom.

6.2 Recognizing and responding to illness

One of the most striking features of the patterns in care seeking for asram—and indeed all newborn illness—was that treatment from different sources (e.g. herbs, hospital) was always sequential and never simultaneous. Informants always stated that you could try local medicine or Western medicine, but never at the same time as

it is very dangerous to combine the two. Compounding the delay caused by sequential care seeking is the need to use herbal or traditional medicine for at least 7 days in order to see an improvement. The reason families avoid using modern and traditional medicine at the same time is the perceived powerful nature of both types of medicine, which it is reasoned, work in totally different, and potentially opposite, ways. Most informants professed ignorance about the ways that either medicine work and there is profound mystery regarding both types of medicine by the average mother or caretaker. People with some command of either type of medicine are revered and 'lay' people do not attempt to understand or critically examine the treatment prescribed by either local healers or doctors/nurses/drug sellers.

This sense of disempowerment in the face of complex knowledge often extends to illness and symptom recognition, not only to treatment. Mothers are not always confident of their abilities to recognize that a child is ill. They often depend heavily on the advice of others, especially their mothers or other older women in the community to diagnose illness at home. One of the informants put it this way, 'If the baby is sick at the home, it is the elderly women in the house who can tell that the baby is sick.'

Another explanation for poor symptom recognition may be found in the inherent power dynamics of the newborn's family. One informant said that 'most women can realise when their baby is sick and only a fool would not know, so if they delay [seeking care] it is for financial problems'. Due to their lack of financial and social influence, mothers of newborns may not be in a position to seek treatment for their newborns, even when they suspect that their child is unwell. Rather than

acknowledging the baby's illness and being forced to confront an array of treatments that they are not able to carry out on their own (e.g. purchasing medicine from a drug seller, going to hospital or finding someone with asram herbs) women may have to depend on the grandmother who has more authority and influence to insist that the baby is ill and therefore needs treatment. It is possible that women seek the counsel of their mothers or other older women in order to determine the resort to treatment rather than to decide by themselves that the child is ill. An older woman said 'If you have money you can take the baby directly to hospital but if you do not you must ask your husband for money or permission to take the baby to the hospital'.

6.3 Sources of advice on newborn health and illness

It was important during discussions on newborn illness, care seeking and death to determine which are the most common sources of advice on newborn health. Topics related to this question revolved around most trusted sources, first sources to be consulted, and the sequence of care seeking events that follows consulting different sources on newborn health.

The most commonly named source of advice on newborn health was the baby's grandmother or another elderly woman in the household. Many women said that they always relied on their mothers or mothers-in-law to tell them when their newborns were sick and also what treatment the newborn should receive for that illness. Older women and grandmothers (in the context of newborn care, 'grandmother' refers to any older woman in the village or community) are thought to have the most experience with newborn illness and their judgement is virtually unquestioned by the

younger women in the community. This unwavering authority comes both by virtue of the grandmother's seniority in the household structure, and also because women truly believe that older women have the most experience and therefore the most authoritative knowledge on newborn illness and care. In addition, it is often the grandmother or an older aunt that performs many of the care practices in the first weeks of life, such as bathing, which affords them the opportunity to closely observe the baby and note any signs or symptoms that they feel reflect an illness.

The second most commonly cited source of advice on newborn illness is the baby's father. Most women agreed that they could ask their husband's opinion on the baby's health and that he would be able to say whether the baby was ill and possibly what type of care should be sought for the baby. The father's role seems slightly more skewed to the latter type of advice, most likely due to his role as financial authority in the household. On a related note, grandmothers interviewed for the study were also very aware of the cost of seeking various types of care for newborns and were very mindful of the family's financial situation in relation to their advice on treatments for newborn illness.

Health providers were the third most commonly mentioned source of advice on newborn illness. Among that group, traditional healers were preferred as a first port of call for most families. There are various types of traditional healers in any given community, ranging from a neighbour or friend who knows a certain type of medicine (e.g. asram medicine, diarrhoea medicine) to professional healers who have their own shops near the market to fetish priests who may or may not use herbs.

Figure 6.1 Preparation of herbs to be sold for treating illnesses

Community outreach nurses, usually referred to as 'Kwashiorkor nurses' were named as the second most preferred type of health provider for advice on newborn illness. A large number of women said that Kwashiorkor nurses advised them that their baby had 'asram' and should be treated with herbs. Several attempts were made to interview community outreach nurses during the study, but only one was located for interview. Community outreach nurses are trained primarily to monitor and promote infant growth for children under the age of five and to provide immunizations, but do not have any specific training in neonatal illness.

Curiously, health clinics, hospitals and nurses and doctors were not mentioned as 'sources of advice' on newborn illness. Perhaps this was because most families see these as the last resort for seriously ill newborns and not as a port of call for general advice on illness. More importantly, going to a clinic or hospital to see a doctor or nurse necessitates spending a larger amount of money than would be needed for a

traditional healer (who also might accept favours or agricultural produce in return for medicine). It was not known whether families expect to pay to see 'kwashiorkor nurses' but community outreach staff are not meant to charge any fees under the Ghanaian health system.

6.4 Constraints to care seeking

6.4.1 Financial problems

Financial problems were consistently mentioned as the single greatest barrier to seeking care for newborn illness. User fees are charged at hospital upon entry and then for medicines and any materials used in treatment (e.g. sterile kits). Although the fee to be admitted and receive a card for eventual treatment by a nurse or doctor is relatively small, families dependent on subsistence farming not only have to consider this amount, but also the cost of transport to and from the health facility, the cost of any medicines prescribed, food and other necessities for the time spent in hospital (e.g. clean cloths to be used as napkins for the baby), and the opportunity cost of a missed amount of time working on the farm or trading.

Similarly, families who live long distances from health facilities said they would be less inclined to use those facilities if traditional medicine or private drug sellers were more locally accessible. In some very remote areas, mobile drug sellers travel by motorbike to sell medicines in villages. A number of informants mentioned preferring to use drug sellers to purchase paracetamol or chloroquine for their newborns, rather than making the journey to a hospital.

One informant said, '[Families] delay taking sick babies to hospital because usually they buy malaria medication or penicillin or gripe water and then they see if that will help before going anywhere'. Another mentioned that, 'You can borrow medicine from the drugstore for your baby, so that when your husband returns from where he went, he can go and pay.'

6.4.2 Hospital/clinic visits

Another reason that seeking care at hospitals or clinics may be delayed or decided against is a previous negative experience at a health facility. Hospitals, such as the Kintampo district hospital are short staffed and overburdened. Some informants reported not being seen even after having paid the requisite fee for an admission card. Others said that they sometimes waited a whole day and received only minimal attention from staff. Many informants hinted at unsympathetic or inadequate treatment from hospital staff who didn't seem concerned about their baby's illness. As so many rural families are illiterate and unaccustomed to dealing with institutional settings, it is possible that they may feel intimidated by hospital staff or the process of negotiating the various entry and processing stages required to receive treatment.

During a participant observation session, an ill newborn was followed through entry to the hospital and treatment. Being accompanied by the researcher presumably gave the family an advantage in terms of ease of admission to the hospital and subsequent processing, but regardless of that, the number of steps through which the family went and stages prior to treatment was long and bewildering.

On entering the hospital a clerk accepted payment for an admission card and then sent the family to an intake station run by a nurse. (If a family did not have money for the admission, no treatment would be offered, regardless of the severity of the illness.) It was difficult to find the intake station and, because the clerk was behind a window and had many other patients to deal with, he did not spend any time explaining where the station was located. Once the family found the intake nurse, they waited behind another group of patients for approximately 30 minutes. The nurse then requested to see the admission card and briefly looked at, but did not examine, the newborn while making notes. She then told the family to go and wait in another area of the hospital to be seen by another nurse. At no point did she ask the family what was wrong with the baby. After pointing in a general direction towards a corridor, the nurse got up and left her station. The family then proceeded to the area that they believed she had indicated and sat down on a bench with another large group of people. After about 45 minutes, a nurse emerged from an examining room to attend to another patient. At this stage the researcher intervened to ask the nurse if they should continue waiting in that particular area to see someone. She then inquired as to the nature of the baby's problem, and directed the family to another area of the hospital which she indicated was the waiting area for children. After waiting in that area for approximately an hour, a nurse came out and the researcher again intervened to ask when the family would be seen. She said that after a while they would be able to see the doctor. After another 30 minutes, they were shown in to see one of the doctors who quickly diagnosed the baby with a high fever and an acute respiratory infection and sent the family to the dispensary for medicine to be given immediately to the newborn. The hospital dispensary was difficult to find and overcrowded; after waiting for a long time, the mother handed over a paper

describing the medicine the baby needed and paid for the medicine, returning afterwards to the nurse's room for the injection. On her return, and after preparing the medicine for injection, the nurse realized that the dispensary had provided the wrong medication for the baby. The mother was then sent back to the dispensary and once again waited in a long queue for the correct medicine which she then brought back to the nurse for injection. By that point the nurse had gone to another part of the hospital and did not return for some time. About 6 hours after arriving at the hospital, the baby received medication and was sent home.

This narrative represents a better than usual case scenario for a newborn taken to hospital with a serious illness, bearing in mind that transport to the hospital was provided by the researcher, and that the presence of a foreigner undoubtedly improved the treatment that the family received (and their ability to navigate the hospital environs and staff). Given the more likely scenario of delayed care seeking compounded by financial constraints, inability to navigate the hospital system, long waiting times and overburdened—and in some cases technically deficient—staff, it is not difficult to see that the situation for ill newborns in the district is dire. It is also not difficult to understand why families often do not utilize the health facilities and why it is not unacceptable within the community to select another form of treatment.

One informant described a similar situation:

> *Last week, I went to hospital and saw one woman who had brought her baby from Anyima. The baby's condition wasn't encouraging at all so I asked the woman to bath the baby with cold water and, whilst they were waiting for the doctor to come, I asked her again to bath the baby. Fortunately the doctor came after some time but there were plenty of people. But I pleaded with them to allow the doctor to look at the baby so they*

agreed and the woman took the baby away. So if it wasn't for my help, I don't think the baby would have survived.

Another type of negative experience with health facilities is that in which a newborn's illness does not improve after a visit to hospital. Many informants, and in particular several of the women who were interviewed after the death of a newborn, said that their baby was treated at the hospital but did not improve. Sometimes women described multiple visits to hospital which still did not result in their newborn becoming well. Such instances, while unavoidable, are further disincentives for families to seek timely care at health facilities and also act to strengthen the notion that some illnesses are not treatable with modern medicine. Indeed, it is possible to say that another barrier to care seeking is belief, or rather, non-belief in the efficacy of health services.

Another important barrier to care seeking is the widespread acceptance that traditional medicine is best for infants, and specifically, newborns. A number of informants expressed this perception and mentioned it as the reason that many people choose to use traditional medicine first when their babies are ill. Coupled with the strongly held belief that traditional medicine and Western medicine should never be given at the same time, it is no wonder that care seeking is usually delayed.

6.4.3 Deciding to go to hospital

In the pattern of care seeking described by these results informants stated that first you must decide the baby is ill—'when the baby cannot eat and cries a lot for some days then you can detect that the baby is ill', or, 'if the baby is sick at the home, it is the elderly women in the house who can tell that the baby is sick.' Then, a decision

must be taken that the illness has not improved after traditional medicine, or is so severe that traditional medicine is skipped: 'If the baby is very ill, the parents should come to an agreement and take the baby to the hospital.' However, in some cases that decision will be delayed because the relevant parties are not available: 'In our tribe if the baby is sick it is the husband who must tell you to take the baby to the hospital'; or do not agree: 'Some of the men don't care about what happens to the baby, even if the baby is very sick. So the mother must always be very anxious about taking the baby to the hospital.' There is a complex interplay between decision making on care seeking and the family's financial situation, distance and access to the health facilities, previous experiences, and predilection for traditional medicine. Multiple parties are involved in the decision making process: the mother, grandmother, father, and potentially other relatives (e.g. those who know traditional medicine). Care seeking cannot be seen as a linear, one dimensional decision making process, but must be understood to be fluid and variable, making intervention to improve its timeliness more difficult.

The presence of barriers to care seeking and utilisation of health services are borne out by the birth cohort analysis. Fifty-nine babies (2.1%) were reported as having had a serious illness. As can be seen in Table 6.1, in nearly 40% of cases care was not sought outside the home at all for that illness. Furthermore care was only sought from a doctor or hospital in fewer than 40% of cases. This points to a very grave situation for ill newborns.

Although parents may seek care from someone inside the home, such as an elderly relative with knowledge of traditional medicine, a large proportion of severely ill

neonates will not be taken to a health facility or receive medical treatment at all. The finding that 25% of cases of severe newborn illness would be brought to a traditional healer is probably an under-representation due to the fact that, in many cases, those who 'know the medicine for' newborn illnesses do not identify themselves as traditional healers but nevertheless undertake diagnoses and prescribing herbal treatments for sick newborns in their household or village.

Table 6.1 Care seeking for 59 newborns with a serious illness

	n	%
Care not sought outside the home for illness	23	39.0
Care sought outside the home for illness	36	61.0
-Doctor or hospital consulted	23	39.0
-Traditional healer consulted	15	25.4

6.5 Newborn Death

The topic of newborn death was approached in a few different ways during the data gathering process. It was part of the topic guides used in semi structured interviews where the open ended nature of the discussion, and the privacy afforded by discussing one-on-one with informants, put women more at ease. Women were also asked about newborn death informally during participant observation sessions and

during in-depth interviews with grandmothers, which afforded some of the most useful information gathered on prevailing attitudes towards newborn death. As part of the ongoing ObaapaVitA trial, verbal autopsies are being conducted to investigate the circumstances surrounding newborn deaths reported in the study area and to assign a medical cause of death. A review of approximately 50 of these was undertaken. The researcher (AB) took part in the conduct of the interview portion of eight such verbal autopsies as part of this study in order to obtain death narratives describing in detail the sequence of events and circumstances surrounding actual newborn deaths.

6.5.1 Death Narratives

It is interesting that in seven of the eight VAs, the newborn was brought to hospital and received some type of diagnosis or treatment. Four of the women interviewed gave birth in the hospital, and four at home (one woman went to the hospital during labour but decided to return home to deliver the baby).

In two of the narratives, the baby died in the hospital within 24-36 hours after the birth. One of those deaths was reportedly due to prematurity and the mother was informed by the doctor that 'the baby was not a human being' and the mother noted that the baby could not 'shake his body' at all though he was able to cry. The other hospital death was from unknown causes and happened while the mother was still recovering from a caesarean section and under anaesthesia, although she was told by the nurses that the baby was normal at birth and cried and breathed normally. Another mother reported that her baby suffered from convulsions, and was given traditional medicine for 7 days with no improvement, then was taken to hospital (and

given paracetamol and vitamin syrup there) but later died at home after not being able to suck or breastfeed. The most unusual case was one in which the mother noticed after the birth that the baby did not have an anus (anal atresia) and so took the baby to Sunyani regional hospital for an operation which resulted in the baby's death.

The three narratives which represent potentially the most common circumstances surrounding newborn death in Kintampo all involve babies who were ill in the first week after birth and were treated with herbs first, then taken to hospital, but who all died after their return home. One of the cases involved a baby who had jaundice shortly after birth and spent several days in hospital before being discharged and sent home. Another concerned a newborn with hematuria, or blood in the urine, who was treated at hospital for fever and 'illness of the stomach' before being discharged and later dying. The final involved a baby who had typical symptoms of 'asram' (green veins on the body and a persistent cry). The newborn was given herbs for seven days then brought to hospital where the doctor apparently advised the mother to purchase Lactogen formula for the baby, because she was not able to breastfeed adequately. On her return home, the woman did not have the money to purchase Lactogen and the baby died shortly thereafter.

In the one narrative concerning a baby who was never treated at hospital, the mother reported that the newborn cried a lot and was ill, then was given herbs for seven days after which time 'the illness attacked the jaws' and prevented the baby from breastfeeding. She said that she never took the baby to hospital because she knew that the illness was not for the hospital and could not be treated there.

Stories such as these, which women share with each other in tightly knit communities, may not encourage other women about the potential benefit of going to hospital with an ill newborn, and do not give hospital birth the appearance of being the safest option, nor do they necessarily promote the use of herbs and traditional medicine, however. Perhaps one of the most important points to be learned from these narratives is that the sequential care seeking process, and its emphasis on the urgent use of traditional medicine for seven days before seeking hospital treatment may delay appropriate care seeking for severe illnesses.

6.5.2 Prevailing attitudes about newborn death

Informants said that the death of a newborn was a sad and painful occurrence for a mother. However, they noted that it was vitally important that the mother of the baby not get overly distressed by a death. The reasons presented for this were that it would be impossible to know 'what the baby would have done for you' over a lifetime. This notion harkens back to one mother's comment that 'I will make a profit in Ghana by having a baby' and the strong linking of children to economic and social wealth. Another informant said grief over a newborn's death should be avoided because 'maybe the baby collected your death for you', a notion that the baby may have prevented a future, untimely death of the mother, which would be a much more serious consequence. Indeed, the most important reason that informants urged women not to become too unhappy over a neonatal death was that a woman can have more children but a child can have only one mother. In Ghanaian culture, it is perceived that death is always around; either the baby would have died or the mother, and either a baby could have done something good for the family in a

lifetime or not. There are proverbs and sayings in different Ghanaian languages which bear out the theme that maternal life is more precious than newborn life. These mainly boil down to the sentiment that ,'a mother can have more babies but a baby has only one mother'.

However, it should not be presumed that newborn life is not considered valuable or not to be mourned at all. Rather, it seems that women are encouraged not to dwell too much or engage in 'thinking too much' over the death of a newborn because they themselves are such valuable members of a tenuous livelihood system. Many interviews revealed the belief that if the mother got too upset over a newborn's death, the 'baby won't come back again', a reference which appears to be rooted in beliefs of afterlife or reincarnation, but which may also be applied to a woman's likelihood of resuming a productive relationship with her husband. Other informants said that newborn death, like all death, is simply 'in God's hands' and must just be accepted as part of life. There is also traditionally no funeral or ceremony for anyone under the age of eighteen in much of Ghanaian society. This fact is interesting in that a person's funeral is thought to be the most important event of their existence and is an extremely significant part of daily social activities in any community. In contrast, newborns are buried quietly and without any ceremony in unremarkable locations.

The concept of culpability for newborn death also arose in discussions about the consequences of care seeking, or lack thereof. Many informants said that if a man refused to allow a woman to take the baby to hospital, or did not give her the money to do so if he had the money, than he would be blamed for the child's death. In

contrast, in-laws who may have disagreed on care seeking decisions were not mentioned as being culpable in any situation.

However, as long as some care seeking was being undertaken (whether by traditional medicine or hospital medicine) than no one would be blamed for the infant's death. In fact, most informants agreed that as long as the family had made some attempt to treat the child—had the 'right intention'—then no one was to blame for the death. The only other situation in which there might be a person to blame for a newborn death is if a woman had more than one or two babies who died, in which case, witches were certainly considered to be at fault.

6.5.3 The spirit child and infanticide

Many informants also described 'spirit children' who were not human beings and were not meant to stay on this earth, but who came only for a short time. Many different informants also described a common scenario in which a baby was obviously not a human being and needed to be tested for human qualities by a fetish priest in order to know how to proceed. Under this scenario, the baby was described as 'not being able to smile or laugh' and often 'flies around the house at night while everyone is sleeping'. Such a baby would be suspected by one or more persons in the household of not being a human being and a fetish priest would then be called. Often the mother would disagree with another relative or her husband over the humanity of the baby. One of two tests might be performed in order to determine the baby's fate. In one test a baby would be left in a room with fiercely burning herbs for several hours and if after exposure to these burning herbs the baby survived, he or she was considered a human being, but if the baby succumbed to the fumes he or she was not

a human being and had been 'sent back to where they came from'. Another method of sending a baby back was described by numerous informants in this way:

> *A priest will come and take the baby to the riverside or the forest. He will leave some mango on the ground near the river and then he will set the baby down on the ground while we wait in the bushes, then if the baby goes to take the mango and turns into a snake and disappears into the river, the priest will fire a shot from his gun into the air and then we will know it was not a human being at all.*

Despite probing to determine whether these 'non human' babies were more often newborns or older babies, it was not possible to find a clear answer. Many informants said that the baby 'looks like a human being but isn't' and that generally these babies don't act differently to the naked eye than other babies, except for the previously mentioned inability to laugh/smile and supernatural powers. Such confusion and disagreement over these babies is in fact why the tests are performed by fetish priests.

Although this subject came up and was explored, it was not necessarily reported as a very frequent occurrence in the study areas.

6.6 Discussion

In this chapter, results have been presented on health seeking behaviour, symptoms of illness and their recognition, sources of advice on newborn illness, constraints to care seeking, and circumstances and attitudes around newborn death.

Previous research conducted by the Ghana Health Seeking Behaviour Project identified a taxonomy of childhood illnesses and explored barriers to care seeking for children under the age of five in Kintampo district (Arthur et al., 1999). One of the most important findings from the work concerned the identification of 'not for hospital' illnesses, a category of illnesses for which informants said there was no medical cure and, therefore, for which they did not seek treatment from a clinic, hospital or other medical provider. Instead, these illnesses were treated with herbs or other local medicine and were thought to have 'personalistic' causes, that is, were the result of witchcraft or spiritual forces. Additionally, the work identified problems in symptom recognition for common illnesses of childhood, such as upper respiratory infections. These findings have powerful ramifications for any intervention aiming to improve care seeking for childhood illness and for projects involved with improving symptom recognition to reduce child morbidity and mortality. However, the study did not look specifically at newborn illness.

The results of the present study confirmed the work by the Ghana HSBP with regard to the personalistic causes of specific illnesses like *asram* and *puni* (which were widely considered by informants to be the only two illnesses noted in the Health Seeking Behaviour Project taxonomy that affect newborns) but found slightly less agreement with regard to labelling of those illnesses as not for hospital.

There were differing ideas from informants about whether or not *asram* could be treated by hospitals or doctors. Some mothers said that they were just not sure whether doctors and hospitals could treat asram. Others stated that it was important to try both hospital and local medicine, though never at the same time, to treat

newborn illness. Many informants said that the only way to cure the asram was to get asram medicine from the person who had given it to the baby or mother in the first place. It was not possible in this study to conclude that informants definitely consider asram in newborns a not for hospital illness. As the authors of the Health Seeking Behaviour Project mentioned in their study, however, care seeking is a very complex process and is influenced by an array of cultural and socio economic factors with correspondingly complex barriers.

Home care is preferred for newborns and usually traditional medicine is attempted as a first line treatment with care from medical providers only tried afterwards, thus delays in care seeking are considerable. Similar results were found in Bangladesh (Winch, 2003), though in that study TBAs were often found to play a key role in referral of sick newborns, a situation that does not necessarily appear to be the same in Kintampo. In Senegal, Niang (2004) found that newborns are often taken to health facilities following a home birth, regardless of whether they are ill or not. Such a precaution may be helpful in identifying illnesses or babies who need special care in the early newborn period. However, the author noted that 'confidence in health care facilities is not absolute' and 'cases were noted where the mother questioned the quality of care she received in the facility.' Similar barriers were found in Kintampo, where many informants expressed a preference for traditional medicine which is considered better for babies, or related stories of how newborns died after being taken to hospital.

Elderly women and 'grandmothers' (including mothers-in-law) are the most commonly cited source of advice on newborn illness in Kintampo. They can both

pronounce children sick and suggest treatment options, especially in the post partum period. Recent studies have also made similar findings in other settings, including West Africa (Niang, 2004, Aubel et al., 2004, Jansen, 2006), India (CARE, 2003), and Nepal (Osrin et al., 2002).

The varied and numerous constraints to care seeking include financial problems, transportation difficulties, previous negative experiences with health services, preference for traditional medicine, and complex decision making processes. Such constraints, whose presence runs counter to the theory that symptom recognition is paramount, have been found in other rural study settings (McNee et al., 1995, Ahorlu et al., 1997, Sodemann et al., 1997) with regard to infant mortality, but only one study was located which examined these constraints to *newborn* care seeking in a rural setting (Mesko et al., 2003). The study by Mesko et al. in Makwanpur District, Nepal, found very similar issues around care seeking in the perinatal period, and major obstacles were reported to be a limited capacity to recognise danger signs, the need to watch and wait, and an overwhelming preference to treat illness within the community.

While verbal autopsy studies have long been used to examine adult and infant deaths, fewer studies have used the technique to assess newborn death due to inherent difficulties (Lawn et al., 2005a), but this is rapidly changing. The Lancet neonatal survival series noted that at present, data on cause specific neonatal mortality can be expensive and difficult to obtain through verbal autopsy, and called for simplified and consistent methods for verbal autopsy, which it noted were mainly applicable in research settings (Lawn et al., 2005b). Resources are currently being

devoted to further validation of verbal autopsy for newborn mortality (Freeman et al., 2005, Setel et al., 2006 , Marsh et al., 2003). Two studies using results of neonatal verbal autopsy have also recently been completed in Ghana [Edmond et al. *in press*] (Baiden et al., 2006b).

In the present study, the death narratives which accompanied verbal autopsies for the ObaapaVitA trial were used to examine the sequence of events leading up to death. The death narratives were used in order to gain a deeper understanding of the actions, attitudes and ramifications of newborn death. These narratives and the semi structured interviews revealed that although newborn death is considered to be a sad event, families in Kintampo focus on the fact that the mother has survived and can therefore go on to bear more children. Newborn deaths are not marked by solemn rites because it is felt that there must be a reason that the baby did not survive—either that the baby was not coming to stay in the world, or that perhaps they were not meant to bring fortune and good for the family—and women are discouraged from dwelling on the death in case the baby decides to return in the form of another child. Niang (2004) describes analogous results from a study in Senegal. Informants in that study reported that there are newborns who die because 'they do not want to remain in the world' and that the woman should be comforted by the fact that 'god has decided that the child must not come'. The same study also reported that many informants believed that 'newborns never get sick', essentially meaning that if an illness is so serious that a newborn does not survive it, they were not meant to remain in the world. A similar sentiment may be present in Kintampo. Some informants said that if a newborn is seriously ill and seems likely to die, then scarce resources would probably not be sacrificed in order to seek care for the child.

The phenomenon of 'spirit children' and their subsequent infanticide has also been reported previously in Northern Ghana (Allotey and Reidpath, 2001), and very recently in Navrongo, Upper East Region (Baiden et al., 2006b). In the study by Baiden et al., it was found that 4% of early neonatal deaths and 18% of late neonatal deaths were due to infanticide. The previous study by Allotey and Reidpath estimated that up to 15% of deaths of children under three months old were caused by infanticide.

Chapter Seven: Lessons Learned

This chapter will present lessons learned from conducting the formative research, both from the perspective of implications for the design of interventions to reduce neonatal mortality and from a methodological point of view. Sections 7.1 – 7.5 summarise implications of the ethnographic research presented in Chapters Four through Six for four of the major potential strategies to reduce newborn mortality: antenatal care behaviour change interventions, health facility based behaviour change interventions, home visits by community health workers, peer counselling and women's groups. Section 7.6 covers general issues that need to be addressed in any behaviour change intervention, while Section 7.7 argues for the importance of including grandmothers in any strategy and Section 7.8 address the role of financial constraints. Finally the chapter concludes in 7.9 with methodological lessons for the conduct of formative research on newborn care practices as a prelude to intervention design.

7.1 Antenatal care behaviour change interventions

Antenatal care coverage in Ghana is high at an estimated 90% nationally (GDHS, 2004), and as such may be an important contact point for attempting to change newborn care practices. A large proportion of women (85.8%) in the ObaapaVitA trial reported attending at least one antenatal care appointment. Formative research in the study confirmed that antenatal care is well known among women as being important (see Section 4.4). Elderly women recommend attending to younger women in order to 'show yourself to the doctor' and make sure that the baby is 'lying well'

in the stomach. Thus it would seem a natural choice for programmers to seek to use antenatal clinics as a locus for behaviour change activities. Any intervention intending to use the ANC as a channel for behaviour change must take into consideration several factors in order to choose this as an appropriate route.

Firstly, women's antenatal care visits are inevitably brief, and involve mainly filling out the required information on the antenatal card. Women rarely have a chance to ask questions as there are too many others waiting for appointments. Rather, mothers-to-be are likely to be lectured to by nursing staff about what sorts of things they should be doing through such appointments. Little notice is taken of their cultural background, ethnicity, age group and family situation; thus such factors are not currently tailored to specific needs for behaviour change. Because health providers in places such as rural Ghana are overburdened and currently report neither the time nor energy to spend in individual discussions with women about specific practices, newborn care practices are not covered at all and finding time to do so will take thorough consideration. Women interviewed for this study indicated that they did not find the antenatal clinic a supportive setting, though they felt it important to attend. Finally, much thought would need to go into how to create more time within the span of an individual antenatal care visit, which women struggle to find their own time and transportation for, in order to accommodate an intervention aimed at changing care practices. Policy makers should keep this in mind when considering this strategy and should consider what supportive additional measures need to be put in place to ensure the success and sustainability of the intervention.

7.2 Health facility based behaviour change interventions

Health providers such as doctors and nurses may influence women and families while they are in the hospital or clinic itself for labour and delivery, or for care seeking during pregnancy. Certainly breastfeeding is initiated earlier in hospital births versus home births in a country where health policies and staff encourage early initiation of breastfeeding, and women do follow the instructions of nurses and midwives in health facilities, even if it is mainly out of intimidation or command of authority.

Though time in the health facility is usually brief following a normal birth, improvements in some key care practices, such as wrapping and drying of the newborn and initiation of breastfeeding are be improved vastly during hospital birth. However, programmes seriously wanting to use this approach would need to carefully evaluate and potentially improve interpersonal skills of health facility staff. Informants in the qualitative research in Kintampo pointed to less than satisfactory treatment by health facility staff in most cases. For example, during participant observation in hospital following one woman's caesarean section, nurses were heard from the corridor shouting loudly at her that she needed to try harder and wasn't doing a good job of initiating breastfeeding. The woman tried her best but continued to have difficulties and appeared fearful of the staff, who made no attempt to demonstrate correct latching techniques to her.

A qualitative study from Northern Ghana by Anderson (2004) found that differential treatment of patients based on categorization as 'villagers' occurs routinely and is acknowledged by health personnel and patients alike to be problematic in terms of achieving the government's stated goal of equity. Such treatment has origins in the complex and difficult aspects of working in an overburdened health system with relatively low pay but relatively high levels of authority and autonomy. It has important effects on social as well as biomedical treatment of patients and any potential programmes using this approach will need to acknowledge and address this issue.

7.3 Home visits by Community Health Workers (CHWs)

An intervention strategy which has been receiving much attention in recent years is the use of home visits by health workers at the community level. Following the success of a test intervention involving home visits to reduce neonatal mortality by Bang and colleagues in Maharashtra, India where health workers were trained to: take histories in pregnancy, observe deliveries, examine neonates, provide home based management of ill neonates and education to mothers (Bang et al., 1999), several similar projects have begun. This approach is now being scaled up to national level in India with the creation of IMNCI (Integrated Management of Neonatal and Childhood Illnesses) where home visits by health workers focus on strengthening home based care, teaching the mother how to recognise diseases early and when to seek medical help, and giving information on the benefits of exclusive breastfeeding. UNICEF has initiated the programme in one district in each of the following five

states – Maharashtra, Rajasthan, Gujarat, Tamil Nadu and Madhya Pradesh – with plans to expand it into 20 other districts across the country (UNICEF, 2006).

Community health workers could be very helpful to mothers and newborns in remote areas who do not have easy access to health facilities or cannot afford to travel to them. In many cases, families would prefer to have health workers come to their home in order to discuss health issues with them. However, mothers in Kintampo would not necessarily inform the community health workers that they were pregnant or were about to deliver and may potentially be reluctant for those unfamiliar to them to see the baby in the first week. Due to the secrecy surrounding both pregnancy and the onset of labour, as mentioned in Chapter Four, and also present in other cultural contexts (Winch, 2005, Niang, 2004, Mesko et al., 2003), programmers need to take into account the issues around identifying and making early contact with women to best ensure health workers entry into the community. The reality may be that it is not possible for the CHW to make a visit on the first day of life. The implications for this are that the CHW will need to make contact before birth if this approach is to influence care practices at the time of delivery or in the first hours following birth. Interventions using this strategy will need to carefully think about ways to ensure CHWs identify women during this time. Any home visit before delivery should also be used to encourage women to deliver at a health facility if at all possible.

A four-celled experimental study in Northern Ghana introduced a community based health worker model as one of its cells in order to evaluate the impact on child mortality. While the study did not specifically investigate the impact on newborn mortality, the intervention using community based health workers was not associated

with any improvement in child mortality in the under one year old age group, and was actually associated with increased mortality in the one to two year old age group (Pence et al., 2001). The authors postulate that increased mortality may have been due to women and families diverting resources from attendance at health clinics or hospitals for infant illness and relying instead on local community health workers who were indeed less expensive but also less well trained and who did not have the ability to treat serious illnesses or those requiring antibiotics. Programmers seeking to use this strategy should investigate all the potential effects of introducing community health workers in order to ensure that any problems are tackled early on and that any potential negative effects are taken in hand.

7.4 Peer counselling

Interventions involving home visits by peer counsellors have shown promise in other country settings, especially with regard to improving initiation and exclusivity of breastfeeding (Davies-Adetugbo and Adebawa, 1997, Morrow et al., 1999). However, women in Kintampo reported not being able to trust their peers during the perinatal and newborn period due to the influence of witchcraft or the 'evil eye' and the notion that 'enemies are everywhere'. Study participants often reported fearing that other women in the community would curse them during delivery or would give their newborn illnesses while visiting or coming to see the baby in the first weeks of life. Given such pervasive fears, which extend to not allowing strangers to see the baby in the first week of life, a peer-counselling approach would need to be tailored to the local belief system in order to be successfully implemented in settings like Ghana where this issue arises. Visits by health workers who have been medically

trained and would acquire authoritative and more neutral status, however, may be more acceptable than visits by peers.

7.5 Women's Groups

Women's groups implemented in both Bolivia and Nepal have been successful at reducing both newborn and maternal mortality (O'Rourke et al., 1998, Manandhar et al., 2004). This approach deserves serious consideration by programmers; Manandhar et al. believe it provides a potentially sustainable and participatory strategy. It does not overburden the local health system, nor compete with other health initiatives. In the MIRA Makwanpur project in Nepal, not only were rates of both maternal and newborn mortality reduced, but local women's groups identified unique solutions to the problems affecting their community, ensuring appropriateness and acceptability, while most members of the women's groups stayed active beyond thirty months (Morrison et al., 2005). There is no strong tradition of women's groups in central Ghana other than the politically active 31st December movement of decades past and some church or funeral groups; fears of witchcraft and enemies might be potential obstacles.

As part of the ObapaaVitA trial planning in 1999, a community rapid anthropological assessment (RAA) was conducted with women in Kintampo District. When asked whether they thought that women's groups would be a good support mechanism, many women responded that they would not be. In all but two villages few women could name any community groups. Generally, women were worried that they would not be good as a way of educating or encouraging women because

not all women are members or would not meet regularly. Most women in all sites thought that using the church or mosques was a good idea, although again some women mentioned that not all people attend the church or mosque (Hill, 2006).

7.6 Behaviour change strategies: general issues

Three issues must be carefully considered in any intervention that aims to change behaviour during delivery and newborn care practices. First, mothers do not make decisions about care practices in a vacuum, but rather rely on their mothers and other older women, as well as husbands, to advise them on how to care for their newborns. Mothers should not be viewed as autonomous in decision making around care practices in the newborn period; this is especially the case for first time mothers (whose newborns have higher rates of morbidity and mortality). Care practices are generally dictated by older women in the household and often it is these women who perform the care practices in the first days and hours of the infant's life—for example acting as TBAs in childbirth and bathing the newborn for the first weeks of life. Respondents explained that new mothers and younger women in general often did not bathe the newborn for the first few weeks because 'they do not know how to do it properly'. In addition, husbands hold influence over home care practices by virtue of power dynamics in the household, cultural or tribal taboos, and financial sway (Adongo et al., 1997). Such examples of shared caring practices and the influence of husbands make the design of an intervention to change behaviour more complex in that many community and household actors need to be considered in order to have an impact on attitudes and practices.

Second, because the ideal versus actual practices span a broad range of activities and time periods (hygiene issues during childbirth, bathing in the whole of the newborn period, breastfeeding, etc.) it will be important to weigh depth vs. breadth in the design and implementation of a purely educational campaign in order to facilitate participant's mastery over a range of messages.

Third, educational, message based interventions must find a way to take into account the 'household production of health' and the myriad cultural, financial and social constraints to behaviour change. As a simple example, some women are required to follow their husbands' taboos related to water and as a consequence must always bathe their children in cold water rather than hot water. Campaigns need to take into consideration varying cultural norms in diverse populations like Kintampo, so that mothers and their newborns may all benefit from educational messages, a task that will take considerable time and effort.

7.7 Involving grandmothers

As one of the major findings of the qualitative research was the influence that older women or 'grandmothers' (referring to both mothers and mothers-in-law) have on newborn care practices, involving them in any type of behaviour change strategy would be indispensable. A 'grandmother inclusive approach' would include grandmothers, mothers in law, and other older women in the community acting as key opinion leaders and managers of infant care within the home and community. This approach has been used in Laos, Uzbekistan, Albania, Mali and Senegal (Aubel 2004). Though the studies were not controlled trials, but rather pilot health projects

funded by various donor and NGO organizations, the results of the project evaluations have been overwhelmingly positive. In a project funded by UNICEF and WHO in Laos, baseline results for grandmothers who would recommend giving 'lots of fluid' to children with diarrhoea were 30%, but following a grandmother inclusive approach to changing care practices, 74% were reported to be giving this advice. The proportion of grandmothers advising women to continue breastfeeding during episodes of diarrhoea also increased by about 20% in the same population (Aubel et al., 1997).

The grandmother inclusive strategy used in Senegal has been documented in an article by Aubel, Toure and Diagne, where funding by USAID and an international NGO (Christian Children's Fund) allowed the team to work on improving grandmothers' advice to mothers, grandmothers' own care practices with infants, and mothers' practices. The project evaluation found the percentage of grandmothers advocating that women give colostrum to their newborns, rather than discarding it, increased from a little more than half to 97% of grandmothers. Similarly, following the increased number of grandmothers advocating decreased workload for their daughters or daughters-in-law during pregnancy—20% recommended pre-intervention and 87% recommended post-intervention—91% of women of reproductive age reported having decreased their workload in intervention areas with only 34% reporting having done so in control areas (Aubel et al., 2004). New grandmother inclusive approaches have been initiated by local NGOs in India (Aubel, 2006) based on these findings and the strategy appears to be gaining popularity as an approach for a number of maternal child health problems.

Programmers interested in adopting a 'grandmother inclusive' strategy need not make it their sole or primary focus. To promote improved breastfeeding practices in Northern Ghana, for example, the Linkages program used counselling cards targeted specifically at grandmothers (who are often TBAs). Deciding to include grandmothers as key actors in at least one component of a newborn survival programme would undoubtedly benefit the program's effectiveness and improve the participation of the community in general.

In the approach advocated by Aubel, the focus is on problem solving skills and the empowering choice to combine traditional and modern approaches to care. Older women in the community exert strong influence over their daughters, daughters-in-law and granddaughters. They also interact in social networks which extend to fathers, husbands and other key actors. It is already clear from the formative research that they act as opinion leaders and gatekeepers of authoritative knowledge on care practices in childbirth and the newborn period. In many cases, they are the only source of information that a mother can rely on due to cultural or social circumstances.

An additional benefit of focusing on older women in the community is that these women are typically in attendance at home births. Rather than attempt to train TBAs, which is a controversial and expensive approach (Kamal, 1998, Sibley and Sipe, 2004, Sibley et al., 2004, Kruske and Barclay, 2004), and also has not been shown to be effective in reducing mortality in the study region, Brong Ahafo (FHI, 1998, Smith et al., 1997, Smith et al., 2000), targeting grandmothers for a participatory

intervention would serve to address care practices in both childbirth and the newborn period.

The strategy would not rely heavily on an overburdened health system and would address behaviour change in the home on a daily basis, where it would have the best chance of improving neonatal survival. However, programme planners would need to ensure that resources and commitment were in place to make this approach successful.

7.8 Overcoming financial constraints

A whole other potential approach to reducing newborn mortality lies in the area of assisting families in overcoming financial constraints. Financial constraints have been identified as a barrier to numerous recommended care practices and strategies in perinatal and neonatal health, including increased use of antenatal care, reducing workload during pregnancy, obtaining skilled attendance at delivery or delivering at a health facility, care seeking for obstetric complications, timely care seeking for neonatal illness, etc. Thus, a potential approach would be to provide access to funds which would remove such constraints to recommended care practices.

Financial assistance has been provided through health and development programmes in the form of microcredit financing, community-held funds, and funds for emergency obstetric care to name a few. Manandhar et al. (2004) reported that women's groups in rural Nepal often chose to have community funds for maternal

and child care in Nepal, and the approach holds considerable potential for other settings.

7.9 Lessons learned— methodological issues

7.9.1 Research teams

One of the first issues encountered in the research was the difficulty in finding fieldworkers to carry out the translation and assist with the conduct of qualitative interviews. Though many educated and well trained staff are available in research centers throughout the developing world, fewer of these staff have training in qualitative research and the social sciences. This skills gap in formative research makes the identification of appropriate local fieldworkers more difficult and time consuming. Training fieldworkers who are identified also takes considerable time and effort, but it is essential. If assistants and researchers do not understand the techniques or the theory behind them, the quality of the data inevitably suffers. One particularly challenging aspect of formative research and qualitative enquiry for fieldworkers is open ended questioning. When approaching topics for discussion, local fieldworkers may tend to look for 'right answers', rather than trying to elicit thoughtful and individual insights. This may be due to the rote nature of teaching and education methods common in many developing countries, to the wording of the research guides into questions rather than topic headings, or perhaps to the fact that eliciting such 'right answers' (or even suggesting them to informants) takes less time than probing for more meaningful, individual stories. In addition, local fieldworkers may want to 'help' informants by encouraging them to provide answers which respondents, due to shyness, reticence or simply being unaccustomed to attention,

may be slow to provide. It is important to emphasize to informants, as well as to remind fieldworkers, that there are no 'right answers' in formative research.

One way to address this issue with fieldworkers is to train extensively and to maintain ongoing discussions and feedback about the data that are available each day. Such discussions will also undoubtedly yield more information on local understandings of health topics as well, and fieldworkers should not be discounted as key informants in the research process.

Despite the difficulties sometimes encountered in finding and training researchers, fieldwork of this type can be done quickly and effectively by a small team, for example three people, provided that the resources are available and the team is dedicated. Resources such as geographical knowledge of the area, transportation, equipment (e.g. recording equipment and office supplies), and information on sampling requirements are necessary to begin formative research work. Translation and transcription are often responsible for delays and slowing down the process, though these hurdles can be overcome if researchers are willing to commit to a daily routine of writing up of fieldnotes and more detailed research notes.

7.9.2 Communication and analysis

Throughout the formative research, it is imperative that members of the research team communicate about the process and address any obstacles as soon as they arise. Ongoing analysis of the incoming data is also crucial because it allows for flexibility in investigating salient topics. One of the great strengths of qualitative enquiry is the

ability to capture unanticipated phenomena and this happens through a continuous process of data analysis, carried out simultaneously with data collection.

Another benefit of daily analysis and working with fieldnotes is the ability to eventually tease out the most reliable data on which to base future hypotheses. Working from a grounded theory approach data is used as the basis for forming hypotheses and by constantly comparing and analyzing data it becomes possible to sense which responses are the informant's personal interpretation, which responses arise from the unnatural situation of being asked questions about events that respondents have never considered before, and which responses truly represent cultural and community norms.

7.9.3 Methods and flexibility

Participant observation was a critical part of data gathering in this study and without it, many of the important findings would have been missed. Due to the secrecy surrounding pregnancies and deliveries, much of what we learned about the pregnancy and post partum phases was acquired from observation. Those practices and activities which were not secret often were simply forgotten by the informants who did not think to mention them to researchers, an additional problem when relying solely on interviews and discussions. Although it is more time consuming to conduct observation throughout a long day (and possibly) night, it provides more information than simply asking would provide. And furthermore, it allows the informants to go about their daily activities with less disruption than interviewing. In this way, researchers can obtain a window on actual practices in the home without overburdening the informant. Perhaps the most important methodological lesson

learned from the research was that methodology should not be sacred; methods need to be flexible in order to be effectively utilized in different situations.

Kintampo presented a challenging environment at times, as do many developing country research settings, and it was necessary to tailor the instrument of enquiry and data collection to the particular environment in order to learn the most useful information about the complexities of the perinatal and neonatal period. For example, group discussions were carried out to complement interview data and when the topic of childbirth was explored women tended to provide flat and shallow descriptions of the process which did not add to the knowledge base. Whilst focus group discussions are often carried out under fairly formulaic structures with a moderator attempting to elicit different points of view, it became necessary to bring other methods into the group discussion format to generate more meaningful data. In this particular instance theatre for development techniques were used to encourage women to act out skits depicting the process of childbirth and which clearly demonstrated the various positions of the woman in childbirth, the position of her attendants during childbirth, and the manner in which the newborn is handled following delivery.

Another technique that was incorporated into the focus group discussion was cognitive mapping of the reproductive system. When informants began to describe various events during pregnancy involving internal organs and the position of the baby in the womb, it was difficult to visualize what they described. As a result, women were given pens and papers to draw or depict the female anatomy and the physiology of the pregnant woman. By using this method, it was possible to gain a

deeper and more meaningful understanding of the local knowledge regarding gestation and the physical and anatomic changes occurring in the woman and the baby during pregnancy. A welcome benefit of the use of these novel methods was that women found them engaging and were excited to participate in the process, which otherwise may have seemed tedious.

Other techniques, such as pile sorts, were discarded when they were found to be less useful or less appealing to informants. In some cases, the time needed to conduct an interview or a discussion was problematic for women, who have multiple and compulsory responsibilities in their daily lives. Finding ways to reduce the amount of time needed from informants (by properly training fieldworkers for example) and to make the time that they donate seem not to be wasted (perhaps by explaining to them exactly what the research will be used for and offering to guide them to sources of medical support for personal health problems) is essential to an ethical research practice and making methods flexible enough to allow that is key.

Figure 7.1 Female focus group participants with their babies

Figure 7.2 Male focus group participants

Chapter Eight: Summary and Recommendations

This thesis has presented background information on the problem of neonatal mortality; the available literature on: neonatal mortality, newborn care practices, the use of anthropology for research in Ghana and elsewhere, and current interventions to reduce neonatal mortality; and has put forward the results and lessons learned from qualitative research conducted at four study sites in Kintampo District, Brong Ahafo Region, Ghana. In this chapter, a summary of the findings is offered along with recommendations based on these findings.

8.1 Ethnographic research: main findings

8.1.1 Pregnancy

- Pregnancy is seen as a time of danger and vulnerability and is kept secret as long as possible. This presents a number of difficulties for estimating gestational age and for intervening in the prenatal period to reduce newborn mortality.
- Women do not have much additional support during pregnancy and must rely on continuing with a normal, relatively heavy, workload during pregnancy. They are encouraged to work hard during pregnancy in order to have an easier delivery. Women take herbs during pregnancy for various illnesses, and especially for an easy delivery in the last month of pregnancy. Care seeking for illness in pregnancy is often through private drug sellers.
- Pregnant women stockpile various items during pregnancy that they will need for the postpartum period and some try to save money for emergencies, but most

women do not think it is possible to plan their childbirth or decide on where the child will be born in advance, though they hope for a home delivery.

- Most women do attend antenatal services at least once in their pregnancy (the birth cohort analysis found 85.8% had at least one ANC visit). There was confusion over whether these services were free; visits with a nurse/midwife are supposed to be provided free of charge but drugs or vitamins prescribed through ANC are not free. The visits are often perfunctory and some informants said that they only go in order to obtain a 'pink card' in case of eventual hospital delivery.
- Women have a strong set of beliefs about the physiological changes that the baby undergoes and feel that the 8th month of pregnancy is the best in which to deliver.

8.1.2 Childbirth

- Home births are overwhelmingly preferred to hospital births mainly for financial reasons, but also due to fears of caesarean operations and reports of prior bad experiences in hospital. The majority of births, more than 70% in the birth cohort, take place at home.
- The onset of labour is kept secret by the labouring woman for as long as possible and then only her mother and TBA are expected to attend to her. She is not autonomous in decision making if emergencies arise and the decision must be made to go to hospital. Older women, such as the TBA or the woman's mother generally make the decision to go to hospital for childbirth. Women described various impediments to childbirth in the form of personalistic or spiritual causes as well as ethnomedical ones.

8.1.3 Newborn care practices

- Surfaces used for home deliveries (usually a pile of old cloths or the bare floor) are not hygienic. Most women did not describe hand-washing by any attendants before the childbirth. The newborn infant is usually placed on a pile of old cloths after birth and remains in the birth fluids until the placenta is delivered.

- Because of the focus on timely delivery of the placenta, and the reluctance to cut the umbilical cord until it has been delivered, babies are not usually wrapped or dried urgently following the second stage of labour, but are left in the pool of birth fluids. More than 70% of respondents in the birth cohort survey reported wrapping and drying the baby within 30 minutes of the birth, but this is higher than would have been expected from the qualitative data. It is likely to be considered appropriate not to wrap/dry immediately because the newborn will be thoroughly bathed following the delivery of the placenta and thus wrapping and drying can be postponed until that time.

    - Newborns are usually wrapped in *ntomago* or flour sacks that have been carefully washed. The *ntomago* must be procured in advance of the birth at some cost and are often seen as a measure of a family's wealth, thus they may not want to 'waste' *ntomago* on drying and wrapping a newborn who will shortly be bathed anyway.

- After the placenta is delivered, the umbilical cord is tied with thread, often already used for hair braiding, and cut with a razor blade or in the case of a delivery occurring outside the home (i.e. at the farm or in the bush), with whatever may be on hand such as a broken pot or rock.

- The newborn and mother both bathe immediately after the delivery, and thus are separated, unless severely ill. The newborn is bathed by the TBA or grandmother with hot water using a sponge and soap and is then massaged with shea butter.
- Newborns who are not breathing or crying after birth are resuscitated using a variety of methods including immersion in cold water, hot pepper application to the skin, slapping the soles of the feet or being hung upside down. Resuscitation may be delayed during the third stage of labour.
- Various substances are applied to the neonate's umbilical cord after the birth and first bath. Herbs or leaves, salt, chalk, ash, extract of seeds, saltpetre, saliva and shea butter were all mentioned. It is considered important that the umbilical stump fall off as quickly as possible.
- Initiation of breastfeeding is often delayed; only 31.5% of women in the birth cohort analysis initiated within the fist hour after birth. Some of the reasons usually given for this were that the woman was too tired after the birth or that the baby and mother needed to bathe, however, the most important reason is that women believe that there is not any milk in the breast after birth.
    - About 33% in the cohort analysis said that there wasn't enough milk in the breast to initiate breastfeeding immediately. Some women do offer the breast despite their belief that there isn't enough milk available, while many prefer to give prelacteal feeds of water or water that has previously had bread soaked in it and then been strained. Some 25% of newborns are given nothing at all on the first day of life.
    - Women do sometimes discard colostrum but most women have been exposed to advice against the practice.

    - Less than 50% of women exclusively breastfeed on day one of the newborn's life.

- During the first week of life, the mother and newborn stay in the confines of their home if possible. This is because the first week of a newborn's life is seen as a vulnerable time when the baby is susceptible to spiritual or other influences which could easily cause illness or death.
- Almost all newborns are bathed 2 or 3 times per day during the first month of life. Informants said that it was important to bathe newborns frequently in order to heal the *kru* or gaps in the newborn's body with hot water and shea butter, and to use sponge and soap too, in order to prevent body odour later in life.
- The majority of informants, and 52.8% of the birth cohort, said that they had applied shea butter to the newborn's umbilical stump during the first month of life. This is done routinely as part of the bathing ritual throughout the newborn period and occasionally other herbs or substances are applied as well, especially if the newborn is thought to be ill or suffering from abdominal pains related to the umbilicus. Shea butter and hot water are also routinely applied to the penis, vagina and anus of newborns in order to strengthen the baby.
- Circumcision of newborn boys is performed at home, usually at the end of the first week of life, by untrained villagers known as *wanzam*, who are usually reported to be from the North of the country. A special knife is used for the process and was not reported to be boiled or otherwise cleaned prior to the procedure.
- Exclusive breastfeeding in the newborn period was only practiced by 64% of women during the first month of life in the birth cohort analysis. Other substances informants described giving to the newborn during qualitative interviews include:

water, bread-water, Lactogen ('white man's food'), Milo, tinned milk, and porridge.

- Maternal perception of newborn's size at birth may not be very reliable as few women were able to say that their newborns were other than normal or average size when questioned in interviews. None of the informants reported any special practices or increased vulnerability for babies that seemed very small or were born early. There is however, perceived to be increased danger for babies born during the 7th month of gestation, which is considered a dangerous time for birth.
- Grandmothers and older women in the household usually act as TBAs and carry out many newborn care practices, such as bathing, in the first week of life.

8.1.4 Newborn care seeking

- The most commonly mentioned newborn illness, *asram*, is generally considered an illness that cannot be treated at hospital, though some informants said that they weren't sure whether doctors could treat it.
- Women do not always feel confident in their ability to decide if their child is ill and do not necessarily deem as serious symptoms for which they should seek treatment like persistent cough or fast breathing, diarrhoea, vomiting, fever, and other ailments.
- Older women and grandmothers are often the ones who decide that a child is in need of treatment and they also determine the type of treatment (e.g. traditional medicine or hospital) due to their authority within the household and community.
- Herbal medicines used to treat newborn illnesses are customarily used for seven days before expecting any improvement. Because care seeking is done

sequentially, rather than simultaneously, this creates delays in seeking care from doctors or hospitals while the effects of traditional medicine are evaluated.

- Financial problems were consistently reported to be the main constraint to seeking hospital or medical care for newborn illnesses. A number of different costs are associated with seeking care at a health facility, including but not limited to user fees, transportation to the facility, opportunity costs of lost time at the farm or engaged in other income generating activities, and the cost of medicines and hospital supplies.
- Informants indicated that if a newborn is seriously ill and likely to die, using scarce resources to take that child to hospital would not be beneficial for the family as a whole.
- Another important constraint to seeking care is negative experiences at overcrowded and understaffed health facilities, both in terms of the treatment having had a beneficial effect and in terms of the difficulties encountered while navigating a hospital visit.
- In 39% of cases of serious illness in newborns from the birth cohort, treatment for that illness was not sought outside the home. This represents a large proportion of newborns for whom hospital care is not sought at all.

8.1.5 Newborn Death

- Women who have lost a newborn are encouraged not to grieve for too long and funerals are not held for newborns, who are buried with a minimum of commemoration. Newborn death is thought to occur for a reason and thus is not to be mourned or thought about for a protracted period.

- Infanticide reportedly occurs in the area and is openly discussed. Spirit children or those who may not be true human beings are evaluated by fetish priests and then their fate is determined based on various tests.

8.2 Lessons learned for intervention design

8.2.1 Pregnancy

- Because pregnancy is kept hidden and seen as a time of vulnerability, projects which aim to intervene during this stage need to find ways of reaching women as early as possible in their pregnancies.
- Women take herbs in pregnancy in order to have an easy delivery and do not take any other medications, including ones prescribed by a doctor or nurse, at the same time. Further investigation into the implications of this practice is necessary, especially as it impacts anemia and malaria prevention efforts.
- Interventions aimed at promoting skilled attendance at delivery need to take into account: families' preference for home birth, women's lack of decision making power, and the realities of the financial constraints which prevent women from being able to actively plan the location of childbirth.
- Antenatal care settings could be a useful contact point for interventions, due to high coverage and knowledge about such services. However, interventions using this channel must overcome a number of obstacles including perceived cost, lack of staff time and placing greater demands on an already overburdened system, as well as women's negative experiences with services. Most importantly, it will be necessary to determine whether women who make only a single visit to an antenatal clinic will be served by an intervention using this channel.

- Dangers of premature delivery, globally responsible for 27% of newborn mortality, and the need to seek care in premature labour should be stressed by any intervention strategy; women in the study noted a preference for giving birth in the 8th month of gestation, and showed a lack of understanding the potential dangers of preterm delivery. They may not attend antenatal clinics until the 2nd trimester of pregnancy or later, hindering determination of gestational age.

8.2.2 Childbirth and the newborn

- Strategies which seek to make contact with women in the first days of a newborn's life, such as community health worker interventions, must initiate contact prior to the delivery in order to have an impact. The deep secrecy surrounding the onset of labour will hinder this process, and interventions must take this into account.

- Women are not autonomous in decision making around place of delivery or care seeking during difficulties in delivery, thus older women in the community must also be targeted for behaviour change. 'Grandmothers', including mothers, mothers-in-law and older female relatives in the household, exert tremendous influence on home care practices during pregnancy, labour and delivery, and the newborn period. Women trust the older generations for support and advice on these matters and feel obligated to follow that advice, making these 'grandmothers' the de facto authorities on maternal and child health in the community. In addition, the older women often perform many of the care practices themselves, such as attending deliveries and bathing the newborn. For these reasons, it is essential that intervention strategies include them prominently in behaviour change strategies for all care practices.

- Interventions seeking to reduce newborn mortality need to address care practices in several different areas.
    - Hygiene practices during and immediately after delivery must be improved.
    - Timely wrapping and drying of the newborn, with or without a reduced emphasis on the newborn's first bath must be encouraged.
    - Interventions can potentially reduce infections through addressing the problem of foreign substances applied to the umbilical cord
    - Breastfeeding practices which have been shown to impact neonatal mortality in the study area (Edmond et al., 2006), specifically prompt initiation, should be targeted for improvement at community level.
    - Improved hygiene around circumcision of newborn boys could possibly address a proportion of newborn mortality and morbidity and more research on the topic is needed in order to intervene.

8.2.3 Neonatal care seeking

- Many potentially serious signs and symptoms of illness are not recognized as dangerous by women in the study area; intervention strategies aiming to improve care seeking should address this problem.
- Ways of encouraging medical facilities as the first line of treatment for newborn illness should be pursued through participatory strategies targeting grandmothers and husbands, who are important in the decision making process. Behaviour change communication could be used to discourage the typical delay of seven days while continuing use of herbal remedies.

- Major gaps in seeking care outside the home were found. Treatment outside the home by trained medical providers must be made accessible to the poorest segments of the community. Financial constraints were a major barrier to seeking such care. These could potentially be addressed through interventions which would provide community funds to be used in case of newborn health emergencies.

8.2.4 Intervention Strategies

- 'Grandmothers' are a vital part of the household production of newborn health in the study site. Their involvement in carrying out care practices and their influence in determining appropriate practices should not be overlooked by any intervention strategy. It is essential that programmes include them in any attempt to change behaviour.

- Antenatal care, though utilized by the majority of women in the study, may not be a viable channel for intervention. Women do not find the services supportive and do not see them as a potential source of advice on newborn care. Antenatal clinic staff are overburdened and may not accept additional responsibilities related to behaviour change.
- Peer counselling strategies hold limited potential for use in the study area as most women reported that peers could not be trusted in the perinatal and newborn periods due to the presence of 'enemies' and witchcraft.
- Women's groups hold some promise as an intervention strategy in the study area, but previous research in the study area describing women's negative opinions of this as a potential channel must be revisited and possible barriers overcome.

8.3 Formative research methodology

- Formative research on newborn care practices is essential for two different reasons, firstly to provide an in depth understanding of newborn care practices themselves, and secondly in order to tailor any interventions aimed at improving those practices.
- Identifying and training appropriate researchers for a formative research team is extremely important in that it has direct ramifications for the quality of data obtained. Finding researchers suited to the work may require effort, as it is necessary to gauge not only their background, but their potential for interaction with informants. Time spent training researchers who may not have strong experience with qualitative methods is well spent and facilitates efficient fieldwork. All team members should be involved in both data collection and analysis.
- Local researchers should be considered key informants as their background and knowledge will undoubtedly impact the research, if only in a subtle way. Interesting events or topics occurring during the day's fieldwork should be discussed and can provide useful points for analysis or generate questions for further investigation. For example, when one fieldworker referred to infant formula as 'white man's food', the researcher was able to investigate the significance of the moniker in relation to feeding practices and attitudes.
- Ongoing analysis of the incoming data is crucial and allows for flexibility in investigating salient topics, as well as the ability to capture unanticipated phenomena. In this study, for example, bathing was originally not anticipated to be an interesting topic, however, analysis and discussions of data collected on a

daily basis allowed the research team to appreciate the significance of this practice, and the frequency and uniformity of it, in the newborn period. Daily communication with team members on the research and collaborative analysis and processing of data is vital to the success of a formative research project in order to ensure internal validity.

- Participant observation was the foundation method for researching care practices in this study and is indispensable to such research, easily justifying the extra effort that it demands. Without it, many of the important findings of this study would have been missed. In addition, it is usually less intrusive to the informant, who can go about their life as normal (after an initial period of habituation to the observer's presence). This point is particularly relevant to subsistence farmers or others who must continue their daily work in order to meet the needs of their family.

- A range of qualitative methods is available for formative research; these should be thought of as tools in a toolbox, selected or not selected as appropriate to the task at hand. It is important for researchers not to become too fixated at the start of the project on particular methods which may not prove appropriate in the field. In this study for example, pile sorts were tried but not pursued because they did not yield enough data and informants found them confusing. In order to obtain the most accurate data on any given topic, research plans must allow this flexibility from the start.

- Novel methods can serve the dual purposes of providing added dimension to descriptive data collection and re-energizing informants who may be weary of answering questions. They also do not necessarily take up excess time on the part of the research team. In this study, for example, skits and mapping techniques

were incorporated into group discussions in order to provide better descriptions of detailed caring practices. Skits were used to act out the positions women use during labour and the location and position of birth attendants. Mapping or drawing was used to depict the female reproductive anatomy and the location of the baby in the womb. Keeping informants engaged and interested in the process of collecting information will generate the best data and most thoughtful discussions or responses.

- Transcription and translation can be valuable for capturing the authentic voice of the informant and was useful in this study, but whether or not it is used, taking detailed fieldnotes is vital to the success of research. These notes usually provide the main source for coding and thematic analysis. Recording data through multiple sources, e.g. fieldworker notebooks, master logs, tape recordings, and personal journals, not only brings richness to the analysis, but allows for faster coding and processing of complex qualitative data.
- Fieldwork can be completed in a relatively short period of time, for example, three to four months, with a small team given efficient use of resources (transportation, office space and equipment, local knowledge of the area) and dedication of team members. Not only is focused ethnographic fieldwork an ideal way to produce in-depth data, but it can also generate new ideas that merit exploration in future research.

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Appendices

Appendix I

Guide 1. Background characteristics of village/community

1. Number of people
2. Geographic organisation and area of the community
3. Languages spoken and ethnic composition
4. Age of community (i.e. new settlement)
5. Community infrastructure (electricity, piped water, latrines, schools, etc.)
6. Village economics and markets (days, size, products)
7. Description of the major community organisations
8. Name and positions of political and religious leaders
9. Name and description of health-related community organisations
10. Nearest health facility

Appendix II

Guide 2. In-depth interviews with key informants

1. Community health resources

1.1 Who would you go to if you were not feeling well?

Probe: healers, family members, midwives, drug sellers, clinics, TBA, child welfare clinic, hospital

Which ones do you patronize most and why?

1.2 What is the most important source of healthcare in this community for newborn babies?

What is the most important source of healthcare for pregnant women?

2. Health priorities in the community

2.1 What are the most common health problems in the community?

What about the most common health problems of newborn babies (0-28 days old)?

What about for pregnant women?

2.2 How different are the health problems of newborns and pregnant women from other people?

3. Childbirth in the community

Preamble: Usually pregnant women make some kind of preparation for childbirth…

3.1 What kind of preparations do women make for childbirth?
Probe: Cleaning, informing relatives, buying items, antenatal care attendance, general preparations

If interviewee has listed items to bring to hospital birth, *elicit*: What if a person doesn't have enough money?

3.2 What are the signs that labour has started?
Probe: pain, breaking of waters, past experience

3.3 In this community what are the places where women give birth?
Probe: most commonly used location

3.4 Under what circumstances would each of these different locations be used?
Probe: difficult labour, transportation, comfort, money

3.5 Preamble: Many times women deliver their babies at home…

During deliveries at home, who are the people in the room with the woman giving birth?
Probe: family members, midwives, reasons why these people are present (customs, social rites, convenience)

3.6 What are some of the important items needed for a birth at home?

3.7 How are each of these items used?

3.8 Can you please describe an easy home delivery?

3.9 Can you please describe a difficult home delivery?

4. Care of newborn babies in the community

4.1 Tell us what happens to the newborn baby in the first few hours after birth?
Probes:
Bathing immediately after delivery of baby
Length of time mom and baby are separated
Dressing/wrapping of the baby (including what kind of cloth)
Breastfeeding
Care of the umbilical cord (including anything applied to the stump)
Temperature (does it matter whether the room is hot/cold, etc…)
Socio-cultural rites
Gifts/jewellery/ornaments/money given to the baby

NB: This section should be very detailed.

4.2 Tell us what happens to the newborn baby in the first week after birth?
Probes:
Bathing
Breastfeeding
Care of the umbilical cord (including anything applied to the stump)
Type of clothes used for baby
Socio-cultural rites
Gifts/jewellery/ornaments/money given to the baby

NB: This section should be very detailed.

4.3 After the birth who helps the mother to take care of the baby?
Probe: role of grandmothers, husbands, other family members

4.4 What tells you just after the delivery that the baby is healthy?
Probe: cries, moves, begins to feed

4.5 What might tell you just after the birth that the baby is not healthy?
Probe: baby not moving, difficult breathing

5. Management of illness in the newborn period (0-28 days old)

5.1 What are the common illnesses of newborns?
Probe: asram, puni

What are the causes of these illnesses?

5.2 What are the signs that would let someone know a newborn has some of these illnesses?

OR

Do they rely on another person to tell them that baby is not well?

5.3 If a newborn is not well, what are the actions that would be taken?

5.4 What can be done to prevent some of the newborn illnesses?

6. Suggestions from the community on improving childbirth and the health of newborn babies

6.1 What are the most important problems this community faces in terms of childbirth?

What are the most important problems this community faces in terms of newborn health?

6.2 What has been done so far to help overcome these problems?

6.3 In your opinion, what can be done about these problems?

Appendix III

Guide 3. Expert interviews with health providers on home birth and newborn care in the home

1. Health priorities in the community

1.1 What are the most common illnesses in this community?

What are the main illnesses of newborn babies (0-28 days old)?

What are the main illnesses of pregnant women?

1.2 How different are the health problems of newborns and pregnant women from other people?

2. Childbirth in the community

Preamble: Pregnant women usually make some kind of preparation for childbirth…

2.1 What kind of preparations do women make for childbirth?
Probe: Cleaning, informing relatives, buying items, antenatal care attendance, general preparations

If interviewee has listed items to bring to hospital birth, *elicit*: What if a person doesn't have enough money?

2.2 Under what circumstances would women give birth at home?
Probe: transportation difficult, comfort, money

2.3 How do women giving birth know that labour has started?
Probe: pain, breaking of waters, etc…

2.4 During deliveries at home, who are the people in the room with the woman giving birth?
Probe: family members, midwives, reasons why these people are present (customs, social rites, convenience)

For TBAs:

Who 'directs' the activities of the birth (i.e. who would tell the woman when to push and what to do)?

How is the woman positioned (does she squat/use a stool/lay down)?

Which room would be used for the delivery?

What surface would be used for the delivery (old cloths, a mat, etc…)?

Should the room for giving birth be hot or cold?

2.5 What are some of the important items needed for a birth at home?

Does the blade have to be new?

2.6 How are each of these items used?

2.7 What makes a home delivery easy or more difficult?

3. Care of newborn babies in the home and community

3.1 Tell us what happens to the newborn baby in the home in the first few hours after birth?
Probes:
Bathing immediately after delivery of baby
Length of time mom and baby are separated
Dressing/wrapping of the baby (including what kind of cloth)
Breastfeeding
Care of the umbilical cord (including anything applied to the stump)
Temperature (does it matter whether the room is hot/cold, etc…)
Socio-cultural rites
Gifts/jewellery/ornaments/money given to the baby

For TBAs:

If the baby does not come out easily, what would you do?

Do you ever insert your hands into the birth canal?

What happens if the placenta does not come out?

Is the cord tied before cutting it?

Do you have to have special skills to cut it or can anyone do that?

Is hot or cold water used on the baby just after birth? *Probe: 'tunkru'*

Should women give the first milk from the breast (colostrum)?

Would anything be given before breastmilk (water/sugar)?

3.2 Tell us what happens in the home to the newborn baby in the first week after birth?
Probes:
Bathing
Breastfeeding
Care of the umbilical cord (including anything applied to the stump)
Type of clothes used for baby

Is circumcision ever performed? If so, who does it? Any other socio-cultural rites?
Gifts/jewellery/ornaments/money given to the baby

For TBAs:

How many times should the baby be bathed?

Should hot or cold water be used for the bath?

How is the baby dressed/covered in the first weeks after birth?

3.3 After the birth who helps the mother to take care of the baby?
Probe: role of grandmothers, husbands, other family members

3.4 How could a person tell just after delivery that the baby is well?
Probe: cries, begins to feed well

3.5 How could a person tell just after delivery that the baby is not well?
Probe: baby does not cry, difficult breathing

For TBAs:

What would you do if the newborn was not crying or breathing?

4. Home management of illness in the newborn period (0-28 days old)

4.1 Have you ever heard of asram/puni/asabra/ananasono?

What are the causes of these illnesses?

What are the signs that a child has some of these illnesses?

How do mothers treat these illnesses?

Can a baby survive asram?

Is a child born with asram from the moment of birth?

If a child has asram, should the child be fed and bathed the same way as normal?

Is there anything that a mother can do on her own to prevent asram?

4.2 What do you think could be done *in the home* to prevent some of the newborn illnesses?

5. Suggestions from health providers on improving childbirth and the health of newborn babies

5.1 What are the most important problems this community faces in terms of childbirth?

What are the most important problems this community faces in terms of newborn health?

5.2 What has been done so far to help overcome these problems?

5.3 In your opinion, what can be done about these problems?

Appendix IV

Guide 4. Semistructured interviews with mothers

1. Perceptions of pregnancy

1.1 How do women feel about being pregnant? Is it a time that you would look forward to or not at all?

Probe for: changes in
-family relations
-respect
-religious status
-economic status
-personal factors

What is different for the first pregnancy?

Do these things change as you have more children?

1.2 Can you please describe a pregnancy that went very well?

1.3 Can you please describe a pregnancy that was very hard?

1.4 What are some of the risks during pregnancy?
Probe: death, illness, less affection from husband

What are some of the benefits during pregnancy?
Probe: changes to socio-cultural status, friends help with your domestic responsibilities

1.5 What are some of the changes to your habits during pregnancy?

1.6 What are some behaviours you would avoid during pregnancy?

1.7 What are some things (either physical, spiritual or medical) that might protect you during your pregnancy?

2. Childbirth

Preamble: Pregnant women usually make some kind of preparation for childbirth…

2.1 What kind of preparations do you make for childbirth?
Probe: Cleaning, informing relatives, buying items, antenatal care attendance, general preparations

If interviewee has listed items to bring to hospital birth, *elicit*: What if a person doesn't have enough money?

2.2 What are the signs that labour has started?
Probe: pain, breaking of waters, pressure on the bladder

2.3 In this community what are the places where women give birth?
Probe: most commonly used location

2.4 Under what circumstances would each of these locations be used?
Probe: difficult labour, transportation, comfort, money

Preamble: Many times women deliver their babies at home…

2.5 Which room to do you use for a delivery at home?

What kind of surface would you use?
(mat, cloths, dirt floor)

During deliveries at home, who are the people in the room with the woman giving birth?

Probe: family members, midwives, reasons why these people are present (customs, social rites, convenience)

Who directs the delivery (i.e. tells you what to do, when to push etc…)?

What are the positions of the people in the room (does someone hold you or do they just stand or sit waiting to take the child)?

Do you squat, use a stool, lie down, or use another position?

2.6 What are some of the important items needed for a birth at home?

2.7 How are each of these items used?

2.8 What makes a delivery easier or more difficult?

2.9 What would you do if the baby was stuck in the birth canal?

2.10 What happens if the placenta does not come out?

2.11 At any point does someone insert their hands into the birth canal?

3. Care of newborn babies in the home

3.1 Please could you tell us a little about how you take care of the newborn baby *in the home* starting from just after the baby comes out…
Probes:
1. Can anyone cut the umbilical cord or do you have to know how to do it?
2. Is the cord tied before cutting it?

3. Is the baby wiped or bathed after it comes out? Is hot or cold water used for the bath? Who gives the child the first bath? *Probe*: 'tunkru'
4. Length of time mom and baby are separated? Does the woman bathe?
5. How is the baby wrapped or dressed?
6. Is baby given water or anything else on the lips before the breast?
7. When do you first breastfeed and do you give the colostrum?
8. Do you apply anything to the umbilical stump?
9. Does it matter whether the room for delivery is hot or cold?
10. Where does the baby sleep? Is the room hot or cold?
11. Socio-cultural rites?
12. Gifts/jewellery/ornaments/money given to the baby?

3.2 Now we would like to ask you about how you care for the newborn baby *in the home* in the first weeks after birth…
Probes:
1. How often is the child bathed?
2. Who does the bathing and what type of water is used?
3. What is special about bathing a newborn or can anyone know how to do it?
4. How often is the child breastfeeding?
5. How is the umbilical cord cared for in the first week?
6. Is there any circumcision performed? Other socio cultural rites?
7. Gifts/jewellery/ornaments/money given to the baby? When are the baby's ears pierced or when are the beads placed around the stomach?

If interviewee focuses on immunizations, re-direct to *home* care practices.

3.3 After the birth who helps mother to take care of the baby?
Probe: role of grandmothers, husbands, other family members

Do these people hold the baby or help to bathe or feed the baby?

Among those who help you, who is the most important source of advice on caring for the baby?

3.4 What tells you just after the delivery that the baby is healthy?
Probe: cries, moves, begins to feed

3.5 What might tell you just after the birth that the baby is not healthy?
Probe: baby not moving, difficult breathing

OR

Do you normally rely on another person to tell you that baby is not well?

4. Home management of illness in the newborn period (0-28 days old)

4.1 What are the common illnesses of newborns?
Probe: asram, ananasono, puni

4.2 What are the causes of these illnesses?

4.3 What are the signs that would let you know the newborn is not well?

Or do you rely on another person to tell you that the baby is not well?

4.4 If a newborn is not well, what are the actions that you would take?

4.5 Is it possible for a baby to survive if they have asram?

4.6 If a newborn has asram, would you feed and bathe it the same as a healthy child?

4.7 Is there anything that you, as a mother, can do to prevent asram?

5. Suggestions from mothers on improving childbirth and the health of newborn babies

5.1 What are the most important problems you face in terms of having a healthy childbirth?

What are the most important problems you face in terms of keeping the newborn healthy?

5.2 What has been done so far to help overcome these problems?

5.3 In your opinion, what can be done about these problems?

Appendix V

Guide 5. Case histories / narrative interviews with mothers

Please describe your last birth in detail.

Please describe in detail how you took care of your newborn baby at home.

Additional probe: care seeking

Appendix VI

Guide 6. Participant observation with mothers

Pregnancy:

Eating habits
Rest/workload
Preparations for childbirth

Childbirth:

Items needed for birth
Hygiene
Attendants
Location
Timing
'Direction' of labour
Care of umbilicus
Handling of products of birth
Immediate actions after birth (newborn and mother)
Breastfeeding
Thermal control of newborn

Newborn period:

Hygiene
Thermal control
Breastfeeding
Care seeking

Appendix VII

Guide 7. Group discussions

1. Community health resources

1.1 Who would you go to if you were not feeling well?

Probe: healers, family members, midwives, drug sellers, clinics, TBA, child welfare clinic, hospital

Which ones do you patronize most and why?

1.2 What is the most important source of healthcare in this community for newborn babies?

What is the most important source of healthcare for pregnant women?

2. Health priorities in the community

2.2 What are the most common health problems in the community?

What about the most common health problems of newborn babies (0-28 days old)?

What about for pregnant women?

2.2 How different are the health problems of newborns and pregnant women from other people?

3. Childbirth in the community

Preamble: Usually pregnant women make some kind of preparation for childbirth…

3.4 What kind of preparations do women make for childbirth?
Probe: Cleaning, informing relatives, buying items, antenatal care attendance, general preparations

If interviewee has listed items to bring to hospital birth, *elicit*: What if a person doesn't have enough money?

3.5 What are the signs that labour has started?
Probe: pain, breaking of waters, past experience

3.6 In this community what are the places where women give birth?
Probe: most commonly used location

3.4 Under what circumstances would each of these different locations be used?
Probe: difficult labour, transportation, comfort, money

3.5 Preamble: Many times women deliver their babies at home…

During deliveries at home, who are the people in the room with the woman giving birth?
Probe: family members, midwives, reasons why these people are present (customs, social rites, convenience)

3.6 What are some of the important items needed for a birth at home?

3.7 How are each of these items used?

3.8 Can you please tell us about a home delivery that went very well?

3.9 Can you please tell us about a home delivery that did not go well?

4. Care of newborn babies in the community

4.4 Tell us what happens to the newborn baby in the first few hours after birth?
Probes:
Bathing immediately after delivery of baby
Length of time mom and baby are separated
Dressing/wrapping of the baby (including what kind of cloth)
Breastfeeding
Care of the umbilical cord (including anything applied to the stump)
Temperature (does it matter whether the room is hot/cold, etc…)
Socio-cultural rites
Gifts/jewellery/ornaments/money given to the baby

NB: This section should be very detailed.

4.5 Tell us what happens to the newborn baby in the first week after birth?
Probes:
Bathing
Breastfeeding
Care of the umbilical cord (including anything applied to the stump)
Type of clothes used for baby
Socio-cultural rites
Gifts/jewellery/ornaments/money given to the baby

NB: This section should be very detailed.

4.6 After the birth who helps the mother to take care of the baby?
Probe: role of grandmothers, husbands, other family members

4.4 How could a person tell just after the birth that the baby is well?
Probe: cries, begins to feed well

4.5 How could a person tell just after the birth that the baby is not well?
Probe: baby does not cry, difficult breathing

5. Management of illness in the newborn period (0-28 days old)

5.1 What are the common illnesses of newborns?
Probe: asram, puni

What are the causes of these illnesses?

5.2 What are the signs that would let someone know a newborn has some of these illnesses?

OR

Do they rely on another person to tell them that baby is not well?

5.3 If a newborn is not well, what are the actions that would be taken?

5.4 What can be done to prevent some of the newborn illnesses?

6. Suggestions from the community on improving childbirth and the health of newborn babies

6.1 What are the most important problems this community faces in terms of childbirth?

What are the most important problems this community faces in terms of newborn health?

6.4 What has been done so far to help overcome these problems?

6.5 In your opinion, what can be done about these problems?

Appendix VIII Master Fieldwork Log

	Date	Location	Fieldwork	Comment
1.	4 February 2004	Kintampo	Guide 2 IDI Key Informant	Primary school teacher near KHRC
2.			Guide 2	Man who runs lottery booth near Station
3.	5 February 2004	Kintampo	Guide 4 Semistructured Interview	Hausa woman, 2 children
4.			Guide 2	Grusi, 4 children
5.	6 February 2004	Kintampo	Guide 2	Bono, 2 children
6.			Guide 4	Bono
7.			Guide 4	Konkomba
8.	9 February 2004	Krabonso	Guide 2	Bono, 3 children
9.			Guide 2	Dagomba, 3 children
10.			Guide 4	Dagomba, 2 children
11.	10 February 2004	Sabule	G4	Mo woman, 3 children
12.			G3	Mo TBA
13.	13 February 2004	Nante	G2	Sissala, 5 children
14.			G3	TBA
15.	17 February 2004	Jema	G2	Bono
16.			G4	Bono, 2 children
17.			G2	Bono
18.			G2	Bono
19.	18 February 2004	Jema	G4	Bono, 1 child
20.			G2	Ashanti
21.			G4	Bono, 5 children
22.	19 February 2004	Jema	G4	Bono, 2 children
23.			G4	Bono, 1 child
24.			G4	Fanti, 2 children
25.	20 February 2004	Jema	Participant Observation N	Bono, 2 children, 4 hours
26.	23 February 2004	Jema	Guide 3 Health Provider	Midwife
27.			G3	Nurse at govt. clinic
28.	24 February 2004	Jema	PObs N	5 hours
29.			PObs C	4.5 hours
30.	25 February 2004	Jema	G3	Traditional Healer
31.			G3	Herbalist (for Asram and Piles)
32.			PObs N	4.5 hours
33.	26 February 2004	Jema	PObs C	3.5 hours
34.			PObs N	3.5 hours
35.	27 February 2004	Jema	PObs N	3 hours
36.			PObs C	3 hours
37.	1 March 2004	Jema	G3	TBA
38.			G3	TBA
39.	2 March 2004	Jema	PObs N	3 hours
40.			PObs C	Visit to ANC
41.			G4	Bono, 5 children
42.	3 March 2004	Jema/ Techiman	G3	Nurse Midwife – Head of Labour Ward, Techiman Holy Family Hospital
43.	4 March 2004	Jema	G4	Bono, 2 children
44.			G5	Bono, 2 children
45.			PObs N	2 hours
46.	5 March 2004	Jema	G3	Nurse – Head of Jema govt clinic
47.			G3	Nurse Midwife – Head of Maternity Ward, Techiman

				Holy Family Hospital
48.	9 March 2004	Jema	G4	Bono, 1 child
49.			G5	Bono, 1 child
50.			G5	ibid
51.			G5	Bono, 1 child
52.	10 March 2004	Jema	G5	Bono, 2 children
53.			G5	Bono, 3 children
54.			PObs C	4 hours
55.			G4	1 child
56.	12 March 2004	Jema/ Kintampo	PObs C	4 hours
57.	15 March 2004	Apesika	G4	Mo, 5 children
58.			G5	ibid
59.			G4	Akan, 7 children
60.			G5	ibid
61.		Jema/ Kintampo	PObs C	2 hours
62.	16 March 2004	Apesika	G2	Bono
63.			G2	Mo
64.			G2	Bono
65.	17 March 2004	Apesika	PObs-Meri Adam	2 hours, 9 mos pregnant
66.			G4	Bono, no children (pregnant)
67.			G4	Grushi, 9 children
68.			G5	ibid
69.			G4	Bono, 2 children
70.			G5	ibid
71.	23 March 2004	Jema	G3	Drug seller
72.	24 March 2004	Apesika	G3	Drug seller
73.		Jema/ Kintampo	PObs C	4 hours
74.	29 March 2004	Kintampo	PObs C (Delivery by Cesarean Section)	4 hours
75.	30 March 2004	Apesika	G3	Drug seller
76.			G3	Midwife
77.	31 March 2004	Apesika	G3	TBA
78.			G3	TBA
79.			PObs M	4 hours (missed her delivery, referred newborn to hosp.)
80.	1 April 2004	Apesika/ Kintampo	PObs M	4 hours @ Kintampo Hospital with ill newborn
81.		Kintampo	G3	Dr. Clement Nabare, Physician at Kintampo Hosp (Peds/Ob/Gyn)
82.	2 April 2004	Kadelso	VPM narratives	
83.		Gulumpe	VPM narratives	
84.		Kintampo	PObs C and M	4 hours @ Kintampo Hospital with ill neonates
85.	5 April 2004	Apesika	G3	Homeopathic Doctor
86.			G4	Mo, 8 children
87.			G5	ibid
88.	6 April 2004	Apesika	G4	Mo, 1 child
89.			G5	ibid
90.			PObs C	(following delivery of her newborn and his treatment for illness at Kintampo Hosp.) 2 hrs

91.	7 April 2004	Apesika	G3	TBA (Mo)
92.			G3	Asram Medicine Man
93.			G4	Bono, 3 children
94.			PObs M	4 hours
95.	8 April 2004	Apesika	G4	Bono/Mo, 5 children (caretaker of orphan)
96.			G4	Baasare, 2 children
97.			PObs C	2 hours
98.	9 April 2004	Anyima	VPM narratives	
99.	12 April 2004	Pamudu	VPM narratives	
100.	13 April 2004	Kawampe	G2	Konkomba, 4 children
101.			G2	Gonja, 7 children
102.	14 April 2004	Kawampe	G4	Mo, 3 children
103.			G5	ibid
104.			PObs 4	
105.			G2	Banda, 10 children
106.	15 April 2004	Kawampe	G4	Gonja, 2 children
107.			G5	ibid
108.			G4	Gonja, 9 children
109.			G5	ibid
110.	16 April 2004	Kawampe	G4	Gonja, 6 children
111.			G5	ibid
112.			G4	Gonja, 11 children
113.			G5	ibid
114.	19 April 2004	Kawampe	G4	Konkomba, 4 children
115.			G4	Konkomba, 2 children
116.			G5	ibid
117.			G4	Gonja, 5 children
118.			G5	ibid
119.	20 April 2004	Kawampe	G4	Fulani
120.			G3	Drug seller
121.			G3	TBA
122.	21 April 2004	Kawampe	G3	TBA
123.			G3	TBA
124.	22 April 2004	Kawampe	G4	Dagomba
125.			G3	Traditional Healer
126.			PObs 4	
127.	23 April 2004	Gulumpe	G3	Community Health Assistants (private)
128.		Dawadawa	G3	Head of Dawadawa Clinic (Medical Assistant)
129.		Atta Akurra	G3	TBA/Herbalist
130.		Kawampe	PObs 4	
131.	24 April 2004	Kintampo	G2	Bono
132.			G2	Brong
133.	26 April 2004	Kintampo	G4	Mo, 4 children
134.			G5	
135.			G4	Mo, 2 children
136.			G5	
137.			G4	Mo, 3 children
138.			G5	
139.		Kawampe	PObs 4	
140.	27 April 2004	Kintampo	G4	Sisala, 3 children
141.			G5	
142.			G4	Gruma, 1 child
143.			G5	
144.		Kawampe	PObs 4	
145.	28 April 2004	Kintampo	G4	Dagarti, 3 children

146.			G5	ibid
147.			G3	Dr. Meledes, Kintampo Hosp. (from Cuba)
148.			PObs	
149.	29 April 2004	Kintampo	G3	Dr. K Duah, Herbal Doctor
150.			G4	Basare, 5 children
151.			G5	ibid
152.			G3	Pharmacist, Adueneba Pharmacy
153.			G3	Herbs trader
154.			G3	Herbalist
155.			PObs	
156.	30 April 2004	Kintampo	G4	Frafra, 1 child
157.			G5	ibid
158.			PObs	
159.			G4	Chokosi, 2 children
160.			G5	ibid
161.	1 May 2004	Kintampo	G4	Bono, 7 children
162.			G3	TBA
163.	3 May 2004	Kintampo	G3	Kintampo Hospital Midwife
164.	4 May 2004	Kintampo	G3	Community Health Nurse
165.		Jema	G7 Women	
166.			G7 Women	
167.			G7 Women	
168.	5 May 2004	Kintampo	G7 Women	
169.			G7 Women	
170.			G7 Women	
171.			G7 Men	
172.	6 May 2004	Apesika	G7 Women	
173.			G7 Women	
174.			G7 Women	
175.	7 May 2004	Kawampe	G7 Men	
176.			G7 Women	
177.			G7 Women	

Appendix IX

Consent Forms

Form A – Interviews

Form B – Participant Observation

Form C – Death Narrative Interviews

Form D – Group Discussions

Form E – Structured Survey

January 2004

Information Sheet A

For interviews with mothers, caretakers, and health providers: (To be translated)

Project: Formative research on interventions to reduce neonatal mortality in rural Ghana

Principal Investigators: Betty Kirkwood, Seth Owusu Agyei

Organizations: London School of Hygiene & Tropical Medicine *and* Kintampo Health Research Centre (KHRC), Ghana Health Services

Sponsor: World Health Organization

Please read and explain this to the person being approached for interview. Let them ask questions, and ask them to agree and sign only when you are satisfied that they have understood the message.

Introduce the team: I am ----------, and I work at the Kintampo Health Research Centre and this is Alessandra Bazzano from the London School of Hygiene & Tropical Medicine. We are doing some research on newborn health and illness.

Purpose of the research: The Ghana Health Services and the London School of Hygiene & Tropical Medicine are carrying out a study in Kintampo District to try and identify ways to help prevent newborn babies from dying. To do this we need to understand how mothers prepare for the birth of their babies, what happens during the birth, how newborn babies are looked after, what illnesses they get and how these are treated. We would also like to find out about the behavioural and socio-cultural factors that might affect these newborn care practices.

We hope this study will help the Ghana Health Services develop programmes to improve the health of newborn babies in Ghana; it may also help newborns in other countries in the world.

Procedures: You are being invited to take part in this study because we feel that your experience as a ..... (insert mother/caretaker/health provider *as appropriate*) can give us important information. If you accept, you will be required to take part in an interview, which will last about 1-2 hours. During this interview we will ask you questions about how mothers prepare for the birth of their babies, about normal childbirths, about difficult or unusual childbirths, about how newborn babies are looked after, and about cultural practices that take place after birth. We will also ask you about illnesses small babies get, how these are treated, and whose advice is asked for the treatment.

Your participation in this study is completely voluntary. If you do not wish to answer any of the questions, you may say so, and end your participation at any time.

Risks and Discomforts: There is a slight risk that you may feel uncomfortable about talking about some of the topics. If so, please tell us; you may refuse to answer any questions that you wish or stop the interview at any time.

Benefits: There will be no direct benefit to you. However, your participation is likely to help us find out more about what might be done to ensure newborn babies are more likely to survive.

Incentives: You will not be provided with any incentive to take part in the research.

Confidentiality: The interview will take place in private. As well as taking notes, we would like to tape record the entire interview. The tapes and transcripts will be kept in a secure location where they cannot be accessed by anyone who is not directly involved in this project. All the information you give us will be treated as confidential and will only be used for the research. Only research staff, and no other person, will have access to it. Your name will not appear on any documents written by the study team.

Right to refuse or withdraw: You do not need to participate in this study if you do not wish to do so. You may also stop participating in the interview at any time should you wish to. You do not need to give any explanation for your decision. There will be no adverse consequences should you decide not to participate; this will not influence the involvement of you or any members of your family in other KHRC research. If you have any questions you would like answered before you decide whether to participate, please ask us now.

Who to contact: This proposal has been reviewed and approved by the Ghana Health Service Ethical Review Committee and the London School of Hygiene & Tropical Medicine Ethics Committee; the task of both these committees is to make sure that research participants are well treated and protected from harm.

If you have any questions you may ask those now or later. If you wish to ask questions later, you may contact either of the following:

Alessandra Bazzano, Project Leader, LSHTM & Kintampo Health Research Centre
Seth Owusu Agyei, Director, Kintampo Health Research Centre.

CONSENT FORM A for INTERVIEWS

I have been invited to take part in an interview for this research study about newborn babies. The information sheet on this study has been read to me and fully explained. My questions about the study have been answered and I understand that I will be interviewed for about 1-2 hours if I agree to participate, and asked about various aspects of childbirth and care of newborn babies.

I understand that I do not have to take part in this research if I do not wish to do so, and that this will not affect the involvement of either myself or my family in any other KHRC research. I also understand that if I take part, I may refuse to answer any questions that I wish or stop the interview at any time. I do not need to give any reasons for my decisions.

I AGREE TO TAKE PART IN THIS STUDY

Participant's Name:.....

Type of Interview: Mother/Caretaker/Health Provider ***(Please circle)***

Location of Interview:.....

Signature/thumbprint or other sign:.....

Date:.....

Name of project staff:.....

Signature of project staff:.....

Information Sheet B

For participant observation with mothers (and their babies) during late pregnancy and the neonatal period: (To be translated into Bono, Kasim, Nankam, Dangbe)

Project: Formative research on interventions to reduce neonatal mortality in rural Ghana

Principal Investigators: Betty Kirkwood, Seth Owusu Agyei

Organizations: London School of Hygiene & Tropical Medicine *and* Kintampo Health Research Centre (KHRC), Ghana Health Services

Sponsor: World Health Organization

Please read and explain this to the person being approached for participant observation. Let them ask questions, and ask them to agree and sign only when you are satisfied that they have understood the message.

Introduce the team: I am ----------, and I work at the Kintampo Health Research Centre and this is Alessandra Bazzano from the London School of Hygiene & Tropical Medicine. We are doing some research on newborn health and illness.

Purpose of the research: The Ghana Health Services and the London School of Hygiene & Tropical Medicine are carrying out a study in Kintampo District to try and identify ways to help prevent newborn babies from dying. To do this we need to understand how mothers prepare for the birth of their babies, what happens during the birth, how newborn babies are looked after, what illnesses they get and how these are treated. We would also like to find out about the behavioural and socio-cultural factors that might affect these newborn care practices.

We hope this study will help the Ghana Health Services develop programmes to improve the health of newborn babies in Ghana; it may also help newborns in other countries in the world.

Procedures: We would like to ask you if you would be willing to help us find out answers to some of these questions by allowing us to spend time with you observing you in your daily activities. If you agree to participate in this research, the project leader (Alessandra Bazzano) together with a KHRC fieldworker would like to visit you in your compound and join you in your daily activities for a total of about 10-15 separate days during the end of your pregnancy and in the first weeks after your baby is born. During this period, they will make observations and ask you questions about your pregnancy, childbirth and newborn baby. Also, if it is acceptable and convenient to you, they would like to accompany you to any ante-natal visits, routine immunisation visits, or other visits to health providers if these take place during the

time they spend with you. Finally, if you are willing they would like to observe the birth of your child.

Your participation in this study is completely voluntary. If you do not wish to answer any of the questions we ask or if you do not wish us to continue to observe you at any point, you may say so, and end your participation or any portion of it at any time.

Risks and Discomforts: There is a risk that you may feel uncomfortable about allowing us to observe your daily activities and talking about some of the topics that will arise as we observe you and ask you questions related to your activities. If so, please tell us; you may refuse to answer any questions that you wish, stop the observation (or any part of it) at any time, or ask us to leave.

Benefits: Should you become seriously ill while we are visiting you, we will arrange for the KHRC vehicle to take you to Kintampo Hospital. Should your baby become ill while we are with you, we will arrange for the study paediatrician (Dr Karen Edmond) to visit you, or for the KHRC vehicle to take you to hospital if the situation is urgent. We will also try and answer any questions that you may have about the best ways to care for newborn babies. There will be no other direct benefit to you. However, your participation is likely to help us find out more about what might be done to ensure newborn babies are more likely to survive.

Incentives: You will not be provided with any incentive to take part in the research.

Confidentiality: We will take notes during the time we spend with you. These will be kept in a secure location where they cannot be accessed by anyone not directly involved in this project. The information recorded will treated as confidential and will only be used for the research. Only research staff, and no other person, will have access to it. Your name will not appear on any documents written by the study team.

Right to refuse or withdraw: You do not need to participate in this study if you do not wish to do so. You may also stop participating at any time should you wish to, or choose to participate in only some of the activities. You do not need to give any explanation for your decision. There will be no adverse consequences should you decide not to participate; this will not influence the involvement of you or any members of your family in other KHRC research. If you have any questions you would like answered before you decide whether to participate, please ask us now.

Who to contact: This proposal has been reviewed and approved by the Ghana Health Service Ethical Review Committee and the London School of Hygiene & Tropical Medicine Ethics Committee; the task of both these committees is to make sure that research participants are well treated and protected from harm.

If you have any questions you may ask those now or later. If you wish to ask questions later, you may contact either of the following:

Alessandra Bazzano, Project Leader, LSHTM & Kintampo Health Research Centre
Seth Owusu Agyei, Director, Kintampo Health Research Centre.

CONSENT FORM B for PARTICIPANT OBSERVATION

I have been invited to take part in this research study about newborn babies. The information sheet on this study has been read to me and fully explained. My questions about the study have been answered and I understand that if I agree to participate, I will be visited at home by the project leader accompanied by a KHRC fieldworker, on 10-15 occasions towards the end of my pregnancy and in the first few weeks after my baby is born. During these visits they will observe me (and my baby) in my daily activities, and ask me questions about various aspects of pregnancy, childbirth and care of newborn babies.

I understand that I do not have to take part in this research if I do not wish to do so, and that this will not affect the involvement of either myself or my family in any other KHRC research. I also understand that if I take part, I amy stop participating at any time should I wish to, or choose to participate in only some of the activities. I do not need to give any reasons for my decisions.

I AGREE TO TAKE PART IN THIS STUDY

Participant's Name:.....

Location:.....

Expected date of delivery (approx):.....

Signature/thumbprint or other sign:.....

Date:.....

Name of project staff:.....

Signature:.....

Information Sheet C

For death narrative interviews with mothers of newborn babies who have died: (To be translated into Bono, Kasim, Nankam, Dangbe)

Project: Formative research on interventions to reduce neonatal mortality in rural Ghana

Principal Investigators: Betty Kirkwood, Seth Owusu Agyei

Organizations: London School of Hygiene & Tropical Medicine *and* Kintampo Health Research Centre (KHRC), Ghana Health Services

Sponsor: World Health Organization

Please read and explain this to the person being approached for interview. Let them ask questions, and ask them to agree and sign only when you are satisfied that they have understood the message.

Introduce the team: I am ----------, and I work at the Kintampo Health Research Centre and this is Alessandra Bazzano from the London School of Hygiene & Tropical Medicine. We are doing some research on newborn health and illness.

Purpose of the research: The Ghana Health Services and the London School of Hygiene & Tropical Medicine are carrying out a study in Kintampo District to try and identify ways to help prevent newborn babies from dying. We hope that the results will help the Ghana Health Services develop programmes to improve the health of newborn babies in Ghana; they may also help newborns in other countries in the world.

Procedures: The ObaapaVitA team told us that you recently lost a newborn baby – Please accept our condolences on this very sad loss. We know that you have already answered some questions for the ObaapaVitA team about your baby's death. We would like to ask you if you would also be willing to talk to us, because we believe that this information could help us to understand how to stop newborn babies dying. If you agree, we would like you to tell us in detail about everything that happened before your baby died. The discussion with you will take about 1-1½ hours.

Risks and Discomforts: We know that it is likely that you will find it distressing to talk about your baby's death. You are under no obligation to talk to us - your participation in this study is completely voluntary. If you do not wish to stop the discussion at any stage, you may do so. Also if you do not wish to answer any of our questions, you may say so.

Benefits: There will be no direct benefit to you. However, your participation is likely to help us find out more about what might be done to ensure other newborn babies are more likely to survive.

Incentives: You will not be provided with any incentive to take part in the research.

Confidentiality: The interview will take place in private. As well as taking notes, we would like to tape record the entire interview. The tapes and transcripts will be kept in a secure location where they cannot be accessed by anyone who is not directly involved in this project. All the information you give us will be treated as confidential and will only be used for the research. Only research staff, and no other person, will have access to it. Your name will not appear on any documents written by the study team.

Right to refuse or withdraw: You do not need to participate in this study if you do not wish to do so. You may also stop participating in the interview at any time should you wish to. You do not need to give any explanation for your decision. There will be no adverse consequences should you decide not to participate; this will not influence the involvement of you or any members of your family in other KHRC research. If you have any questions you would like answered before you decide whether to participate, please ask us now.

Who to contact: This proposal has been reviewed and approved by the Ghana Health Service Ethical Review Committee and the London School of Hygiene & Tropical Medicine Ethics Committee; the task of both these committees is to make sure that research participants are well treated and protected from harm.

If you have any questions you may ask those now or later. If you wish to ask questions later, you may contact either of the following:

Alessandra Bazzano, Project Leader, LSHTM & Kintampo Health Research Centre
Seth Owusu Agyei, Director, Kintampo Health Research Centre.

CONSENT FORM C for DEATH NARRATIVE INTERVIEWS

I have been invited to take part in an interview for this research study about newborn babies. The information sheet on this study has been read to me and fully explained. My questions about the study have been answered. I understand that I will be interviewed for about 1-1½ hours if I agree to participate, and asked to tell you in detail about everything that happened before my baby died.

I understand that I do not have to take part in this research if I do not wish to do so, and that this will not affect the involvement of either myself or my family in any other KHRC research. I also understand that if I take part, I may refuse to answer any questions that I wish or stop the interview at any time. I do not need to give any reasons for my decisions.

I AGREE TO TAKE PART IN THIS STUDY

Participant's Name:……

ObaapaVitA Woman ID:……

Location:……

Signature/thumbprint or other sign:……

Date:……..

Name of project staff:……

Signature of project staff:……..

Information Sheet D

For Group Discussions: (To be translated into Bono, Kasim, Nankam, Dangbe)

Project: Formative research on interventions to reduce neonatal mortality in rural Ghana

Principal Investigators: Betty Kirkwood, Seth Owusu Agyei

Organizations: London School of Hygiene & Tropical Medicine *and* Kintampo Health Research Centre (KHRC), Ghana Health Services

Sponsor: World Health Organization

Please read and explain this to the person being approached for interview. Let them ask questions, and ask them to agree and sign only when you are satisfied that they have understood the message.

==========

Introduce the team: I am ----------, and I work at the Kintampo Health Research Centre and this is Alessandra Bazzano from the London School of Hygiene & Tropical Medicine. We are doing some research on newborn health and illness.

Purpose of the research: The Ghana Health Services and the London School of Hygiene & Tropical Medicine are carrying out a study in Kintampo District to try and identify ways to help prevent newborn babies from dying. To do this we need to understand how mothers prepare for the birth of their babies, what happens during the birth, how newborn babies are looked after, what illnesses they get and how these are treated. We would also like to find out about the behavioural and socio-cultural factors that might affect these newborn care practices.

We hope this study will help the Ghana Health Services develop programmes to improve the health of newborn babies in Ghana; it may also help newborns in other countries in the world.

Procedures: We would like to invite you to take part in this study because we feel that you can contribute important information to help us assess ways that we might be able to prevent newborn babies from dying. In particular, we would like to invite you to take part in a group discussion with other ..... (*say* mothers/fathers/members of your community *as appropriate*). This discussion will be about childbirth and newborn babies and will last about 1-2 hours.

Your participation in this discussion is completely voluntary. If you do not wish to discuss any of the questions, you may say so. You may also end your participation at any time.

Risks and Discomforts: There is a slight risk that you may feel uncomfortable about talking about some of the topics either in general or in front of other members of the community. If so, please tell us; you may refuse to join in the discussion about any topics as you wish or stop your participation at any time.

Benefits: There will be no direct benefit to you. However, your participation is likely to help us find out more about what might be done to ensure newborn babies are more likely to survive.

Incentives: You will not be provided with any incentive to take part in the research.

Confidentiality: As well as taking notes, we would like to tape record the entire discussion. The tapes and transcripts will be kept in a secure location where they cannot be accessed by anyone who is not directly involved in this project. All the information you give us will be treated as confidential and will only be used for the research. Only research staff, and no other person, will have access to it. Your name will not appear on any documents written by the study team.

Right to refuse or withdraw: You do not need to participate in this study if you do not wish to do so. You may also stop participating in the discussion at any time should you wish to. You do not need to give any explanation for your decision. There will be no adverse consequences should you decide not to participate; this will not influence the involvement of you or any members of your family in other KHRC research. If you have any questions you would like answered before you decide whether to participate, please ask us now.

Who to contact: This proposal has been reviewed and approved by the Ghana Health Service Ethical Review Committee and the London School of Hygiene & Tropical Medicine Ethics Committee; the task of both these committees is to make sure that research participants are well treated and protected from harm.

If you have any questions you may ask those now or later. If you wish to ask questions later, you may contact either of the following:

Alessandra Bazzano, Project Leader, LSHTM & Kintampo Health Research Centre
Seth Owusu Agyei, Director, Kintampo Health Research Centre.

CONSENT FORM D for GROUP DISCUSSIONS

I have been invited to take part in an interview for this research study about newborn babies. The information sheet on this study has been read to me and fully explained. My questions about the study have been answered and I understand that if I agree to participate I will take part in a group discussion about various aspects of childbirth and care of newborn babies. I understand that this discussion will last for about 1-2 hours, and will involve other members of my community.

I understand that I do not have to take part in this research if I do not wish to do so, and that this will not affect the involvement of either myself or my family in any other KHRC research. I also understand that if I take part, I may refuse to discuss any topics as I wish or stop my participation in the discussion at any time. I do not need to give any reasons for my decisions.

I AGREE TO TAKE PART IN THIS STUDY

Participant's Name:.....

Type of Group Discussion: Mothers/Fathers/Community Members ***(Please circle)***

Location of Interview:.....

Signature/thumbprint or other sign:.....

Date:.....

Name of project staff:.....

Signature of project staff:.....